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APPENDICITIS IN CHILDREN*

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NEW ORLEANS.

The appendix was first distinguished by Berengarius of Carpi in 1524.

During the sixteenth century much was written about this organ—anatomically; as a pathological possibility it remained in oblivion until the eighteenth century; and lastly as a clinical and surgical entity received but little consideration until the nineteenth century.

In 1759 Mestivier called the attention of the first accepted case of disease of the appendix.

Prior to 1808, the period relating to the appendix is essentially French—followed in quick succession by the English—but as yet—the acceptance or recognition by the Americans had not taken place.

But in 1886 Reginald Fitz* of Boston wrote: "It is the duty of every physician to be mindful that, for all practical purposes perityphilitis, perityphilitic tumor and perityphilitis abscess means inflammation of the vermiform appendix." It was he who first coined the term appendicitis—instead of perityphilitis, perityphlitic tumor and perityphlitis abscess—as had been the nomenclature up to this time.

*Read before the Orleans Parish Medical Society Meeting, June 25, 1928.

*N. Y. Bed. Jour. 47:508, 1886.

At the present time, thanks to the writing of Weir and McBurney of New York, much of our knowledge of the appendix and its various pathological entites were prompted and gained from these original sources.

The first recorded case in a child was made by Parkinson[1] (1812)—a 5-year-old boy. For many years thereafter isolated cases were mentioned in literature.

Iliff[2] (1832) recorded a case of a 12-year-old boy, who died of abscess of the right iliac fossa and at autopsy the appendix was found to contain a stone.

Bohr[3] (1837) and Burne[4] (1839) both reported cases with perforations of the appendix occurring in children 10 and 14 years old, respectively.

Betz[5] (1870), published a paper entitled "Ileus in child 7 months old resulting from perforation of the appendix and agglutination of the intestine."

Matterstock's[6] (1880) admirable treatise published in 1880, and Karewski,[7] 1897, and Selter[8] 1901, have contributed meritorious papers on appendicitis in infancy.

THE CASES.

This study embraces one hundred (100) cases—each one observed in my private practice. For lack of time the statistical data herein given relates to the group that has up to this reading been operated upon—namely thirty-four (34) cases.

The other cases are briefly stated but are not considered in the final deductions.

Operated cases	34
Cases with clinical and Roentgen-ray diagnosis	53
Cases diagnosed without Roentgen-orgrams	13
Total cases	100

AGE AND SYMPTOMS

The youngest case reported was recorded by Gloniger[9] (1905), (Lebanon, Pa.), a male child 41 hours old, and mentioned by Kelly[9] (1905); Hill and Manson[10] (1925), also report their youngest case—an infant 55 hours old.

Miss Gordon[11] (1896), for a period of 12 years antedating 1883, collected 26 cases of appendicitis in 50,000 children; from 1893 to 1896, 80 cases were collected, though the number of children was decidedly smaller.

It will be seen that appendicitis is almost unheard of in the first year of life and is very limited in occurrence during the second and third year, but from the sixth year on the number increases and becomes rather uncommon after the tenth year.

Barrington-Ward's[12] (1928) youngest case was 8 months.

McGuire[13] (1898) collected one hundred and four (104) cases in children, three (3) being under three years of age, forty-seven (47) from three to eight years and fifty-four (54) from nine to fourteen years.

Griffith[14] (1901) reported only fourteen (14) cases from the literature and one of his own, occurring in the first two years of life.

Of McCosh's[15] (1904) one thousand (1000) operative cases of all ages, seventeen (17) occurred in the first five years of life and fifty-one (51) in ages from five to ten years.

Abt[16] (1917) gathered eighty (80) cases two years or younger.

Schlossman[17] (1922) "found that the literature, up to 1922, gave about thirty (30) cases of appendicitis in children under two years. He further states that the appendicitis statistics of the Bremen Hospital for Children, show (60) cases operated on, of which thirty-five (35) were under ten years. The youngest was one and a half years. He also is the authority for the following: Kirmission collected (20) cases in children under two years, of which nine occurred in the first year and seventeen in the second; Deiss reports ninety-eight (98) cases in children, of which seven (7) occurred up to two years and 25 per cent were under five (5) years; Goldzicher found 3.2 per cent of all cases were in the first decade. In Gardner's fifty-one (51) cases operated on, nine were under five and fifty between five and ten years. Dowd operated on seventy (70) children, of which none was under two years. Maylard operated on one hundred (100) patients, the youngest being between three and four years."

Kelley[18] (1923) treated fifty-seven (57) cases of the acute type—five were under two years; one six months; twenty-one under five years, and the remainder under 13 years. Of 16,571 cases collected, 400 were under five years, 1,376 from six to 10 years, and 2,696 between 11 and 15 years.

Bolling[19] (1924) had similar figures.

Mixter[20] (1924) had nine under five years and the youngest patient was two and a half years—out of one hundred cases of chronic appendicitis.

Howland[21] (1924) has expressed that it is distinctly uncommon in children under five years of age, and in those under two years it is really a rare disease.

Others reporting interesting statistics are as follows:

Beekman[22] (1924), 43 cases: Under three years, 10 cases; under four years, 9 cases; under five years, 23 cases.

Richter[23] (1924), 208 cases: Personal, 82 cases; Cook County Hospital, 126 cases:

Under one year, 1 case; under ½ year, 1 case; under two-three years, 3 cases; under three-four years, 2 cases; under four-five years, 9 cases; under six-thirteen years, 192 cases.

Christopher[24] 1926): Under five years, 18 out of 533 collected cases.

Seeger[25] (1926): Out of 61 operations for the removal of the appendix, there were none under two and only four under five years.

In contrast to all these figures is a report by Peterson[26] (1926), who had a group of sixty-two cases in which forty-one occurred up to five years of age, five of these being under one year and five under two years. Twenty-one were seen between five and six years. Over 75 per cent of them were acute.

The youngest case seen by Royster[27] (1927) was an infant three months of age who had a ruptured appendix completely walled off.

A. S. Root[28] (1927) writes "appendicitis is less frequent under ten years of age and the younger the child the more infrequent its occurrence."

My youngest case was sixteen months. The age distribution of this series is as follows:

Under 2 years	2	cases
2-6 years	14	"
6-10 years	10	"
10-14 years	8	"
Total	34	cases

INTERESTING FACTS—ANATOMY AND ETIOLOGY.

Anatomy: The infantile appendix is larger both in diameter and length than in the adult; the coats are much more delicate—especially the submucous; the caeco-appendiceal junction is occasionally funnel shaped—insuring better drainage, but admitting more readily the entrance of foreign bodies; the valves do not appear to close the mouth of the organ as readily—therefore greater lumen and smoother mucosa; blood supply is inadequate—generally by a single vessel in free edge of mesentery—easily affected; always curved, sometimes kinked; free drainage into the caecum may be prevented, resulting in concretions; meso is very thin.

Therefore tendency to rupture, lack of localizing process and lowered resisting power is readily understood.

Etiology: The following causes play a part in influencing appendicitis:

(1) Fecoliths—produced by lack of drainage into the caecum; not seen in the very young but reported by Betz[29] in a child of seven months, and Demme[30] in one of seven weeks. These are exceptional cases. As time is required for formation—they are seen in older children.

(2) Hematogenous infection — advocated by Poynton & Paine[31] (1911), and Rosenow[32] (1915). Based on seasonal incidence—in epidemic form and also of the relation of focal infection and certain contagious diseases—with associated cases of appendicitis.

3. Constipation—supposedly a very common cause—so often noted in appendicitis —but whether the one is the cause of the other—or constipation the result of a diseased appendix is difficult to state.

(4) Virulence of bacteria—unquestionably plays a part in predisposing certain types, and perhaps influences to some extent the acuteness of the attack.

(5) Kink and Meckel's diverticulum—not at all unlikely as a factor in a small proportion of these cases.

(6) Intestinal parasites—can produce pathology—most uncommon—usually the ascaris lumbricoides, tricocephalis and pin worms; *in this series live pin worms were recovered in three cases and in one case diagnosed prior to operation.*

(7) Foreign bodies—accepted when appendicitis was first described—no longer

considered an etiological possibility of much value; seeds have been reported found in appendices, however.

(8) Trauma—in older children a few cases have been reported directly due to abdominal trauma.

(8) Cathartics. A potential appendix though probably present in young children is not often recognized until a cathartic converts it into an acute attack.

Much propaganda should be used in convincing physicians and parents against giving purgatives or cathartics on mere presumption of intestinal disturbances—not until the possibility of appendicitis is definitely ruled out—temporarily intestinal irrigations will give better results.

TYPES.

There were 17 cases of the acute and subacute variety and an equal number of the chronic type. Although there appears to be diversity of opinion as to the relative term chronic being used in this connection. Deaver[33] (1910) and Mixter[34] (1924) are positive in their belief that these conditions do exist, but are unrecognized.

The anatomical considerations in this connection are discussed in a previous paragraph. In children where clinical symptoms are clouded with elements of doubt, go a bit further and utilize other aids—roentgen-ray and blood—in an attempt to properly interpret your case. Do not allow a purgative to "alter" an attack of indigestion so as to transform it into an acute ruptured appendix and then realize, for the first time, the true status of your case.

SEX.

Of the thirty-four (34) cases constituting this study, fourteen (14) were males and twenty (20) were females.

Deaver's[35] (1910) statistics of five hundred (500) cases seem to prove that the disease is much more common in males, as 315 were boys and 185 were girls.

WEIGHT.

In this series of children, more than 90 per cent were from 10 to 20 per cent underweight, and it was remarkable, indeed, to observe the aftermath in this especial regard, when the appendix had been removed.

THIRTY-FOUR (34) OPERATIVE CASES IN DETAIL.*

Case 1. Salient Points:

Past History: Habitual constipation; accustomed to frequent purgations; indiscretions of diet; attacks of acidosis.

Present Illness: General pain in abdomen; high fever; vomiting; flexion of right thigh on abdomen. See blood report under Blood Findings.

Operated by Drs. E. D. Martin and C. G. Cole. "Appendix found to be acutely congested, filled with gas and twice its normal size—it is evidently the beginning of a serious attack."

Pathological Report: Dr. John A. Lanford. "Appendix measures 6½ x ½ cm. The outer surface is somewhat granular and shows the presence of adhesions. It is bright red to flat white in color. No meso it left attached.

"Section shows the wall thickened and lumen dilated and filled with blood and pus."

Case 2. Salient Points:

Past History: Frequent attacks of acidosis, associated with pain in right lower quadrant and elevation of temperature. Abdominal distress after eating; headaches; tendency to constipation. Extremely nervous.

Present Illness: Typical attack.

Operated: Operation by Dr. S. M. D. Clark. "Although the case was carefully worked out by Dr. C. J. Bloom and the child definitely located her pain over McBurney's point, combined with numerous attacks of such trouble, I am doubtful as to the appendix being the true pathology."

Pathological Report: Dr. John A. Lanford. Chronic appendicitis.

Case 3. Salient Points:

Past History: Marked secondary anemia; subject to frequent intestinal disturbances; rickets as an infant; markedly underweight.

Present Illness: Severe abdominal tenderness, with excruciating pain; rigidity, slightly more marked in lower quadrant.

*From the records of Drs. Bloom and de la Houssaye.

Operated by Dr. F. W. Parham. "Appendix found crushed at base; when opened a number of thread worms were found crawling in the appendix."

Pathological Report: Dr. John A. Lanford. "Appendix 5½x½ cm. and pinkish grey in color; shows no gross pathology. Cut surface shows thickened mucosa and inner mucosa glistening. Dirty grey color with three small congested areas."

Case 4. Salient Points:

Past History: Complained of pains in stomach, more in right inguinal region; markedly underweight; secondary anemia; difficult to feed.

Present Illness: None.

Operated by Dr. Jerome Landry. (Hospital history could not be obtained.)

Pathological Report: (Not obtainable.)

Case 5. Salient Points:

Past History: Frequent attacks of acidosis; constipation alternating with diarrhea; underweight; difficult to feed; coliky pains.

Present Illness: General pain in abdomen; elevation of temperature; diarrhea.

Operated by Dr. John F. Dicks. "Appendix found about 2½ inches in length and congested."

Pathological Report: Dr. John A. Lanford. "Appendix measures 7½x¾ cm. The outer surface is smooth and glistening, light pink-grey in color. On incision the lumen is patent and contains fecal material."

Additional Facts of Interest: Since birth his mother had experienced great difficulty in feeding this child, though he "clung to her breasts" for 15 months. Complementation with cow's milk and soft foods were added at correct intervals, but even now one would consider his diet rather limited for his age.

Covering a period of 18 months, intestinal disturbances had caused his parents no small amount of worry—recently his symptoms becoming more aggravated and the so-called attacks occurring at shorter intervals. The "spells" were not periodic, and no apparent indiscretions of diet could be found responsible for same. Even with limitation of varieties and of types of food—these attacks of acidosis continued to occur. At times he would vomit for 8 or 9 days, everything—food, water, etc., singularly with an absence of other symptoms that might have made the diagnosis easy. Costive at certain intervals alternating with days of diarrhea were common occurrences. Seemingly a very restless and irritable child, with no objective nor subjective significant signs or symptoms is our present patient, of a fairly well developed child.

The appendix was considered seriously, though the clinical picture was somewhat atypical. What points in the history and findings are suggestive:

(1) Difficulty to feed at all times.

(2) History of diarrhea, alternating with periods of constipation.

(3) Acetone attacks, without apparent cause, now becoming more severe, as well as frequent.

(4) Extreme restlessness and most disagreeable child.

(5) Indicanuria.

Case 6. Salient Points:

Past History: Underweight; frequent spells of vomiting and headaches; vague pains in umbilical region; indiscretion of diet.

Present Illness: Seemingly the child is not improved; losing ground in most respects.

Operated by Dr. John F. Dicks. "Caecum was found adherent and could not be delivered; appendix was bound down in mass of adhesions and some little difficulty was experienced in delivering it."

Pathological Report: Dr. G. H. Hauser. "Appendix measures 5¾ cm. in length and shows adhesions. Cut surface shows the walls thickened, the mucosa swollen and the lumen obliterated."

Case 7. Salient Points.

Past History: Stationary weight; lack of appetite; occasional attacks of gastric disorders; tendency to various skin eruptions.

Present Illness: Attack of abdominal pain, with nausea; considerable prostration and elevation of temperature. These attacks are becoming more severe and are generally followed by an urticarial eruption. With this spell he has complained considerably of pain in the vicinity of the umbilicus.

Operated by Dr. Peter Graffagnino. "Appendix found free, but filled with fecal concretions. Unusually long and thickened."

Pathological Report: Dr. John A. Lanford. "The outer surface is smooth and glistening, pinkish grey in color and shows slight injection of the serosa vessels. There is practically no meso attached to the organ. Appendix measures 6½ x½ cm."

Case 8. Salient Points.

Past History: Underweight; undigested foul stools; marked secondary anemia; poor appetite. At present aversion to all foods; losing in weight. See blood picture under "Blood Findings."

Present Illness: The feeding problem has reached the crisis. He is unable to retain any solid food whatsoever and liquid nourishment is kept in small amounts.

Operated by Dr. E. Denegre Martin. "Appendix shows evidence of chronic pathology; a Meckel's diverticulum about 4 in. from the ileo-cecal valve was found, ligated and stump inverted."

Pathological Report: By Dr. John A. Lanford. "Appendix measures 6x½ cm., the outer surface is glistening, light pink to grey in color; there is practically no meso left attached to the organ. On section, the wall is normal in thickness, but the lumen contained a blood-tinged serum."

Case 9. Salient Points.

Past History: Has never been sick up to the present time, and no history of intestinal disturbances.

Present Illness: Since one week patient has had pains in abdomen; generalized; and has vomited three times. While having a gastro-intestinal series made, his mother reported of his having roamed around the house one night, unable to find the light switch. The fundi as reported by Dr. H. Blum were negative, a spinal puncture did not reveal any abnormal findings; the pains in the abdomen were becoming more acute, radiating to the lower quadrant. In view of the fact that central spinal considerations were temporarily at least eliminated we felt that an operation was imperative. His inability to see was most pronounced prior to the operation, but subsequently, after the appendix was removed, his vision became more acute. Was this hysterical blindness due to this attack of appendicitis?

Operation by Dr. John F. Dicks. "Free fluid found in cavity; appendix bound down by numerous acute adhesions, distinctly kinked in the center—the meso was very short."

Pathological Indings: Dr. John A. Lanford. "Appendix measures 6x½; the outer surface is smooth and glistening; bright pink in color; and shows considerable injections of the serosa vessels with several regions of thinning and discoloration. On section the wall is thinner than usual and blood escapes from the lumen."

Case 10. Salient Points:

Past History: Extremely poor appetite; secondary anemia; underweight; repeated examination of feces never revealed intestinal parasites nor ova, but large amounts of mucus.

Present Illness: Intestinal disturbance since one week. Diarrhea and nausea since 24 hours, more pronounced on day of operation; pain in abdomen; pinched expression. A tentative diagnosis of intestinal parasites in the appendix was made prior to the operation.

Operated by Dr. John F. Dicks. "Appendix was bound down and adherent in cul-de-sac. Section of appendix revaled about 6 to 8 small pin worms."

Pathological Findings: Dr. John A. Lanford. "No pathological section made as appendix had been dissected. Grossly a picture of definite pathology."

Case 11. Salient Points:

Past History: No previous intestinal disturbance; normal in every respect.

Present Illness: Abdominal pains since 24 hours, localized somewhat in right side; elevation of temperature; purgative given in morning on date of operation. (See blood picture under "Blood Findings.")

Operated by Dr. Urban Maes. "Retrocecal appendix, moderately inflamed; was removed and free fluid noted in the peritoneal cavity."

Pathological Findings: "Appendix measures 7½x½; the outer surface is slightly granular, light pink in color and shows a few white adhesions; there is but little meso left and no fatty tissue left. On section, the wall is thickened and the lumen is filled with blood."

Case 12. Salient Points:

Past History: Always a difficult child to feed; tendency to loose bowels; underweight; anemic; frequent attacks of indigestion.

Present Illness: Recently at intervals of ten days he has had acute attacks of indigestion followed by high fever.

Operated by Dr. S. M. D. Clark. "The appendix was large and kinked; in addition the gall-bladder seemed stuffed and may have to be drained in the future."

Pathological Findings: Dr. John A. Lanford. "Chronic appendicitis."

Case 13. Salient Points:

Past History: Always a very anemic child; tendency to frequent skin eruptions; occasional attacks of diarrhea with no indiscretion of diet associated with abdominal pain.

Present Illness: Classical attacks with slight stiffening of the right rectus muscle.

Operated by Dr. James Wallace, Biloxi, Miss. "Appendix large and greatly involved."

Pathological Findings: Dr. James Wallace. "Acute appendicitis."

Case 14. Salient Points:

Past History: One mild attack ten days ago.

Present Illness: Pain in abdomen—marked—initiated with a severe diarrhea. The pain was excruciating and general in character; temperature 104°.

Operated by Dr. Julius Isaacson. "Stuffed appendix with beginning gangrene at tip."

Pathological Findings: Dr. M. Couret. "Acute appendicitis."

Case 15. Salient Points:

Past History: Child has been indiscreetly fed for many years, and his present condition was precipitated by a mixture of lobster and peach ice cream he ate two days before present attack.

Present Illness: Has been vomiting for two days and complains of intense abdominal pain which was promptly relieved by a hypodermic administration of morphine. This however, followed the giving of a purgative, presumably calomel. This case was mistaken for gastro-intestinal indigestion. Fever reached a maximum of 104° and towards the second day the pain seemed to radiate to the vicinity of the appendix.

Operated by Dr. Lucian Landry. "As the peritoneum is opened a milky fluid escapes. The appendix is tacked down by its tip and located in the pelvis. The appendix was delivered, found to be very much enlarged at the tip, with a rupture about 1¼ inches from the distal extremity. Some exudate was found in the small bowel in the neighborhood of the appendix but no attempt at encapsulation or protection had been made by the body."

Pathological Findings: Dr. John A. Lanford. "Gross appearance suggests acute appendicitis with rupture."

Case 16. Salient Points:

Past History: Negative in every respect.

Present Illness: First attack; classical symptoms.

Operated by Dr. Marion Souchon. "Acute appendix with rupture at tip."

Pathological Findings: Dr. M. Couret. "Acute appendix with gangrenous tip."

Cast 17. Salient Points:

Past History: Tuberculous diathesis; secondary anemia; tendency to constipation; occasionally nauseated.

Present Illness: First real attack with cardinal symptoms—pain, nausea, vomiting, fever, rigidity over McBurney's point.

Operated by Dr. C. Jeff Miller. "Acute appendix of not more than two hours duration; the appendix is abnormally long, containing gas and fecal material. Mesentery shows considerable congestion. The cecum was mobile, dropped into the pelvis and contained considerable fecal material and gases."

Pathological Report: None.

Case 18. Salient Points:

Past History: Many attacks of indigestion, some of which could not be traced to indiscretions of diet.

Present Illness: Acute pain in abdomen, followed by vomiting in the afternoon. The pain was more intense around the umbilicus and became very severe. There was apparently no elevation of temperature.

Operated by Dr. R. E. Stone. "Free fluid in abdominal cavity, appendix delivered; gangrenous —¾ of its length—."

Pathological Report: Dr. John A. Lanford. "Appendix 6x½; the outer surface is granular in character, varies from bright red to purple at one end which latter is bulbous. The organ is covered by a greenish cream exudate; section of the wall shows thickening and much more moist than usual and the lumen contains bloody pus."

Case 19, Salient Points:

Past History: Pains in abdomen off and on for one year; accompanied by vomiting with little or no fever.

Present Illness: Dates back four days; acute pain in pit of stomach; vomiting. Since 24 hours, though pain has ceased, the patient has been becoming gradually worse.

Operated by Dr. R. E. Stone. "Free pus in peritoneal cavity—acute gangrenous appendix also in evidence."

Pathological Report: Dr. John A. Lanford. "Appendix measures 5x¾; the outer surface is

shiny, light cream to pink in color; the serosa is markedly thickened and no vessels are evident; a very long tag of meso is adherent along one border; along the other border there is a very irregular margin containing some remnants of fat. On section the wall is greatly thickened and presents a distinct tissue ring. The lumen is widely patent and contains fecal material."

Case 20. Salient Points:

Past History: For several years he has had an afternoon elevation of temperature which was thought to have been influenced by tuberculous adenopathy of his chest; this, however, has not influenced his growth as he was well proportioned and weighed more than the average child of his age.

Present Illness: Began two days ago with temperature of 100° reaching a maximum of 104°. He suffered from headaches, slight cough and some sneezing. Yesterday he developed stomach ache, with pain more pronounced just below the umbilicus. This was followed by nausea, vomiting and more acute pain. He passed several liquid stools, and today his pain has shifted somewhat to the right side of the abdomen. Though he vomited considerably last night, today this symptom has ceased, as well as the frequent liquid movements.

Operated by Dr. R. Matas. "On opening the peritoneum some serum exuded in small quantity. The ileo-cecal coil at once presented. The cecum was lying across the pelvic brim with the appendix curled up into almost a complete circle. The appendix was lying in the ileo-cecal fossa, completely encysted, and fixed by adhesions. It had a dark purple color, with here and there patches of white exudate. The appendix was evidently becoming gangrenous but had not perforated; it was swollen with fecal contents, etc. The meso was edematous. The appendix when isolated had the appearance of a small sausage composed apparently of a very black fluid of a very foul odor. It is to be noted that there was a very low leukocytic count and the comparative absence of peritoneal reaction in this case."

Consultation: "Intestinal toxemia, with probable ileo-colitis. Localization apparently in the cecum; no positive evidence of appendicitis now. Advise that the patient be kept in the hospital for observation. In the meanwhile, I would treat him as a case of appendicitis."

R. Matas.

Pathological Report: Dr. John A. Lanford. "Specimen of appendix measures 9 cm. in length by 1 cm. in width; the outer surface is granular due to a large amount of fibrin on the surface; color is deep red, and flabbly in consistency; the lumen has been incised; shows mucosa which is red and inflamed at the tip; there is a large amount of pus and necrotic area."

Diagnosis: "Gangrenous appendicitis."

Case 21. Salient Points:

Past History: Irrelevant to facts and symptoms that would aid in the ultimate diagnosis of appendicitis.

Present Illness: Sick 8 days, following eating of green huckleberries; vomited only once, and that on the first day; was given calomel with frequent evacuations as the result, the latter containing mucus and blood; second day he showed improvement, but on the third day was fed beef-steak and from that time became progressively worse. Vomiting, tenderness, constipation and significant elevation of temperature are warning symptoms. The abdomen, just prior to the operation, is rigid, and apparently the child is in much pain; both thighs are flexed on the abdomen.

Operated by Dr. Wm. Kohlman. "Free fluid in peritoneal cavity apparently pus."

Pathological Report: Dr. John A. Lanford. "Acute gangrenous appendix."

Case 22. Salient Points:

Past History: Poor appetite and constipated since birth; frequent attacks of intestinal indigestion without sufficient cause; underweight; anemia.

Present Illness: Attacks becoming more frequent—pain—colicky in character, becoming more acute with present illness constipation has shifted to a colitis, containing some blood and much mucous.

Operated by Dr. Wm. Kohlman. "Appendix found in classical position, curled upon itself, elongated and somewhat stuffed. The mucous membrane appeared thickened. At lower end was twisted upon itself with a visible constriction and lack of blood supply. Incision of the appendix revealed several pin worms (alive)."

Pathological Report: Dr. John A. Lanford. "Chronic appendix."

Case 23. Salient Points:

Past History: Not important.

Present Illness: On the evening of July 20, 1926, this child seemed unusually hungry and, in addition to his meal, was given watermelon, together with other articles of food, not in keeping with a diet for a boy of his age. During the night

he began to vomit, regurgitating everything, even water. Castor oil was given, and repeated, but was not retained by the child. The vomiting continued the entire day and on the afternoon of July 21, 1926, the family physician was summoned and, after examination, ordered some powders. Though the bowels moved several times, as yet the effect of the purgative had not been noted for it was feared that he had not retained enough of same to have given satisfactory results. Apparently, from what was obtained as the history from the parents and physician in charge, the child grew worse and was removed to one of our local hospitals on the morning of July 22, 1926.

The family physician, after making a careful examination, concluded that the child seemed to have considerable pain in the abdomen, more over the appendiceal region than any other. The blood count was made, and a urine specimen was requested; the interpretation of the former was not in accord with his provisional diagnosis of an acute appendicitis.

Realizing his limitations in handling a case of this sort, he consulted with a surgeon and watchful waiting was their decision. In the meanwhile, the child was showing the effects of this illness; marked loss of weight, acetone breath, repeated vomiting, and the facies of a very ill child. On the morning of July 24, a third physician, a pediatrician, was summoned, who interpreted the findings as a reflex condition caused presumably by pyelitis. The plan of treatment had been modified somewhat, urine specimen was again requested, and an additional blood count was asked for. The fifth day, the child becoming more toxic, the vomiting assuming a projectile type; the vomitus containing a large amount of a dark green bile, with the odor of feces, no food nor water for five days; no marked bowel evacuation for two days, and, at that, only a small amount of coloring matter being obtained through the giving of several intestinal irrigations, in the end returning rather clear, particularly for the last 24 hours, prior to the death of the child. As yet, there is only a slight abdominal distention—this was the condition of the child when he was first examined by me on the afternoon of July 25, the sixth day of his illness.

After questioning the parents and those in charge, it was admitted that the child's discomfort and pain and, to a less extent vomiting, had been somewhat relieved since the afternoon of the fourth day, but since then the distention had become more pronounced. As I approached the bedside, the child was vomiting and had the appearance already described; his pulse, though regular, was fast and very soft, immediately a differential diagnosis between an acute gangrenous appendicitis with rupture, and an acute intestinal obstruction (intussusception), secondary to an intestinal intoxication, was made.

As there had been no blood nor mucous in the stools, sufficient to lead me to think of the latter possibility, together with the facts of an absence of a mass in the abdomen—the sudden subsidence of the intense abdominal pain, plus the continued elevation of temperature, all seemed to confirm the former as the correct diagnosis. In order to be absolutely sure, I assisted in giving an irrigation, most of which returned clear, a small amount being but slightly colored. Then a positive diagnosis, consultation written, and an operation asked for, to be performed within the shortest period of time.

Consultation Record is as follows: "There was a history of indiscretion of diet the day before the onset of the present illness. Whether or not this was the initial factor responsible for this attack or occurred in the way of a coincidence is difficult to tell. But the case is plain, exhibiting the following points:

(1) a. Leukocytosis, with increase in neutrophils, 77 per cent.

b. Leukocytosis, with increase in neutrophils, 64 per cent less but still significant.

(2) Abdominal pain, more in the region of the appendix, which became general with increased abdominal distention.

(3) Continued vomiting and fever—the former very pronounced—containing bile in large quantities, and the suggestion of fecal matter.

(4) Facial expression indicates shock; irrigation does not relieve rigidity nor distention and only a slight fecal colored fluid is seen when an irrigation is resorted to.

In view of the points mentioned, the case appears to justify surgical intervention, and therefore I believe an exploration should be performed immediately."

Dr. Charles James Bloom.

Operated by Dr. Edmund L. Leckert and Dr. Harry Heiman. After the child was under the influence of the anaesthetic general abdominal rigidity was evident. The operation was performed late in the afternoon; all four physicians being present. The report of the operation is as follows:

"Through a right rectus incision about 4 inches long the rectus muscle was split and the peritoneum found very much adherent to the abdominal wall. After the opening of the peritoneum,

pus escaped, the suction apparatus being used to free the peritoneum from the pus. Mercurochrome 2 per cent was used inside of the peritoneum cavity.

"The appendix was not located."

Drs. E. Leckert and H. Heiman.

The child grew gradually worse and died the following day.

Discussion:

(1) Vomiting. Regurgitation at first, becoming projectile in character; the vomitus exhibiting in succession food, colored fluid, clear fluid, again becoming colored, green, more intense in color and finally, fecal in character, and not amenable to treatment either direct or indirect.

(2) Fever. This is more or less a common symptom associated with gastro-intestinal disturbance for the first 24 or 48 hours—the maximum elevation is recorded at this time and not at the end. In other words, a continued elevation of temperature, or increasing amount of fever in an intestinal intoxication should always suspicion either an associated appendicitis, or pyelitis. Occasionally, an otitis or a meningitis will similate an intestinal condition with vomiting as a secondary symptom.

(3) Abdominal pain. Subjective symptoms are not a criterion of a child's condition. There is a doubt in my mind regarding this little fellow putting his hand over the appendiceal region. My experience does not coincide with the belief that in the ordinary run of cases and in all the atypical ones, the child can not tell you where the pain is, much less point to a definite area. To the contrary, pain in the abdomen is generally referred by children to the umbilicus or to any of the lower three quarters. But one point that allows no dispute—when pain is abruptly relieved with sedative or a narcotic in acute abdominal disease, the appendix has ruptured.

(4) The blood:

7/24/26, T. W., 11,750; s. l., 21%; l., 1.2%; N. 77%; E. 0%; B. 0%.

7/25/27, T. W., 9.500; s. l., 28%; l., 1.7%; N. 64%; E. 1%.

(5) Absence of fecal matter, limited flatus, and finally an ileus together with a sudden cessation of pain should have been a warning.

Case 24. Salient Points:

Past History: Pains in stomach since 3 years; very anemic; no appetite; considerably underweight.

Present Illness: Did not apparently improve and it was deemed advisable to give this child the benefit of a doubt.

Operated: At Charity Hospital—history not obtainable.

Pathological Report: Not obtainable.

Case 25. Salient Points:

Past History: Very pale, no appetite, prone to all diseases.

Present Illness: Slight nausea and vomiting; some rigidity on right side; constipation; prostrated.

Operated by Dr. Louis Levy. "Chronic appendix."

Pathological Report: Dr. M. Couret. "Chronic appendix."

Case 26. Salient Points:

Past History: Headaches, backache, feels poorly, constipated, secondard anemia, elevation of temperature, markedly underweight.

Present Illness: Abdominal pains; general in character, radiating to right inguinal quadrant, elevation of temperature and some shock.

Operated by Dr. Julius Isaacson. "Chronic appendix."

Pathological Report: Not obtained.

Case 27. Salient Points:

Past History: Has never been sick up to present attack.

Present Illness: Characterized by vomiting, pains, rigidity of abdomen, elevation of temperature and constipation.

Operated by Dr. Julius Isaacson. "Chronic appendix."

Pathological Report: Not obtained.

Case 28. Salient Points:

Past History: Had been ill since one month with a chest cold but no visible intestinal disturbance.

Present Illness: Since one week the child has been vomiting and his bowels have been obstinately constipated. With this his cold has seemed to become aggravated and he has had a continuance of fever—a maximum of 101°. For the past 24 hours, though everything has been given, the bowels have failed to be evacuated. A diagnosis of pneumonia was made, and the condition of his abdomen was ascribed to this cause and

diagnosed as a toxic or paralytic ileus. Subsequently a pediatrician was called in consultation and placed in charge of the child. He diagnosed the case as appendicitis and consulted two surgeons with the idea of having him operated upon. It was definitely decided upon that the condition was not a surgical one. The writer was called in consultation the day before the child succumbed and made a tentative diagnosis of a possible ruptured appendix and peritonitis.

Operated by Dr. R. E. Stone. "The peritoneal cavity was opened and much pus encountered with all the pathologic signs of a general peritonitis and ruptured appendix. The patient had marked evidences of a general peritonitis. The diagnosis surgically was 100 per cent wrong. The previous diagnosis made by two pediatricians was correct, but due to the fact that the baby had pneumonia it was thought to have a paralytic ileus."

Pathological Report: "Acute gangrenous ruptured appendix."

Case 29. Salient Points:

Past History: For past three years has been suffering from pain in right side. Elevation of temperature.

Present Illness: Pain in right inguinal region has become more acute; colicky in character and at times there is marked rigidity of the right rectus muscle.

Operation by Dr. R. E. Stone. "Kinked, stuffed appendix with infected blood vessels and pus at the tip."

Pathological Report: Dr. John A. Lanford. "Chronic appendicitis."

Case 30. Salient Points:

Past History: Always a very delicate child; marked secondary anemia; tendency to constipation; poor appetite.

Present Illness: Acute attack; pain general; rigidity localized in right inguinal region; elevation of temperature and vomiting.

Operated by Dr. Julius Isaacson. "Chronic appendicitis."

Pathological Report: No report.

Case 31. Salient Points:

Past History: Losing weight; no appetite; pains in abdomen, especially in the vicinity of the umbilicus; vomiting at irregular intervals; colicky cramps; tendency to belch at all times.

Present Illness: Symptoms are becoming more acute and diagnosis is established.

Operated on by Dr. John F. Dicks. "The appendix located, adhesions were liberated and the abdomen closed without drainage."

Pathological Report: Dr. Geo. H. Hauser. "Appendix measured 5½ cm. in length. A cut surface shows the walls and mucosa thickened and the lumen contains fecal matter.

Diagnosis: "Acute and chronic exudative and chronic proliferative appendicitis."

Case 32. Salient Points:

Past History: Pain in the abdomen, underweight, elevation of temperature, constipation, poor appetite.

Present Illness: Recently she has had colicky cramps, more pronounced on the left side; appetite extremely poor, constipation more pronounced, painful micturations and vague general pains.

Operated by Dr. R. E. Stone. "Subacute appendix found containing enteroliths thickened and congested."

Pathological Report: Dr. John A. Lanford. "Chronic appendicitis."

Case 33. Salient Points:

Past History: This child is rather diminutive in build and has been a most difficult one to feed since birth. At times the feeding problem has become most acute and now he has an aversion to all foods and vomits for the slightest provocation. This vomiting occurs at any time of the day, especially in the morning, and its stimulation may be either on the one hand a crying spell, an unexplained factor, or else when forced to eat food. Necessarily, due to underfeeding, he has been constipated his entire life.

Present Illness: Vomiting for 12 hours; pains in abdomen, slightly more pronounced on right side; some rigidity; fever 103° and pain on pressure.

Operated by Dr. Lucian Landry. "The appendix is found decidedly stuffed and clubbed in its distal third—subacute appendicitis."

Pathological Report: Dr. John A. Lanford. "Appendix measures 5½x½—the outer surface is smooth and glistening, light pinkish grey in color and shows no injection of serosal vessels. The end is somewhat distended, a small amount of meso, with a few bits of fat, is attached. Section shows the wall somewhat thickened and the lumen contains very little sera."

Case 34. Salient Points:

Past History: History of constipation; failure to gain in weight; attacks of coliky abdominal pains, recently tendency to frequent movements. Roentgen-Ray conclusions: Pylorospasm,moderate ileo—and colonic—stasis.

Present Illness: For past three days has been complaining of acute "shooting" pains in abdomen. On right side pressure brings forth the expression of pain. The bowels are very frequent and she has an elevation of temperature. "The cecum was found densely adhered and could not be delivered."

Operated by Dr. John F. Dicks. "The appendix was retro-cecal and held down by bands of adhesions about its middle third. After liberating adhesions appendix was removed. Closed without drainage."

Preoperative diagnosis: "Chronic appendicitis."

Post operative diagnosis: "Chronic appendicitis."

Pathological Report: Dr. Geo. H. Hauser. "The appendix measured 6 cm. in length. The cut surface showed the wall and muscosa thickened and the lumen contained fecal matter."

Diagnosis: "Chronic exudative and proliferative appendicitis."

DIAGNOSES.

No.	Clinical	Radiological	Surgical	Pathological
1	Acute	—	Acute	Acute
2	Chronic	—	?	Chronic
3	Acute	—	Acute	Chronic
4	Chronic	—	Chronic	Chronic
5	Chronic	?	Chronic	Chronic
6	Chronic	Chronic	Chronic	Chronic
7	Chronic	Chronic	Chronic	Chronic
8	Chronic	Chronic	Chronic	Chronic
9	Sub-acute	Appendicitis?	Sub-acute	Chronic
10	Sub-acute	—	Sub-acute	Chronic
11	Acute	—	Acute	Chronic
12	Chronic	Chronic	Chronic	Chronic
13	Acute	—	Acute	Acute
14	Acute	—	Acute	Acute
15	Acute	—	Acute	Acute
16	Acute	—	Acute	Acute
17	Acute	—	Acute	No report
18	Acute	—	Acute	Acute
19	Acute	—	Acute	Acute
20	Sub-acute	—	Acute	Acute
21	Acute	—	Acute	Acute
22	Chronic	—	Chronic	Chronic
23	Acute	—	Acute	Acute
24	Chronic	—	Chronic	Chronic
25	Chronic	—	Chronic	No report
26	Chronic	—	Chronic	No report
27	Chronic	—	Chronic	No report
28	Acute	—	Acute	Acute
29	Chronic	—	Chronic	Chronic
30	Chronic	—	Chronic	No report
31	Chronic	Chronic	Chronic	Chronic
32	Chronic	Chronic	Sub-acute	Chronic
33	Sub-acute	Sub-acute	Sub-acute	Acute
34	Chronic	?	Chronic	Chronic

Key: ? — where no definite opinion is made, but appendicitis is suspected.
— where no picture was made.

No report: Case 17 specimen dissected; the records of cases 25, 26, 27 and 30 were unfortunately destroyed at one of our institutions due to a flood of the record room.

DIAGNOSIS.

While it is admitted that appendicitis in the infant is unusual, and in childhood—uncommon—at the same time it appears to me that all of us are unquestionably failing to diagnose cases that rightly belong to this group. This admission is applicable to the profession as a whole—indeed the pediatrician is as much at fault as the general practitioner, and is reflected in the following chart:

Yearly Incidence

Years	Cases
1916	1
1919	1
1920	1
1921	2
1923	1
1924	2
1925	3
1926	5
1927	7
1928 (first six months)	11

Recapitulation—More cases have been diagnosed by me in the past 18 months than in the preceding 12½ years. At best, with all the facilities we have at our command, appendicitis, especially the chronic type, is very difficult to diagnose in the child.

Ochsner's[36] (1902) cardinal symptoms—pain, tenderness, nausea and vomiting and rigidity of the abdominal muscles overlying the appendix, unfortunately hold true in but a small per cent of our cases.

SYMPTOMS.

The following are the common symptoms encountered in this clinical picture and will be discussed in sequence:

(1) Pain.
(2) Nausea.
(3) Vomiting.
(4) Acidosis.
(5) Belching.
(6) Temperature.
(7) Abdominal tenderness, abdominal rigidity; abdominal distention.
(8) Flexion of thigh on abdomen.
(9) Bowel disturbances.
(10) Pain on micturation.
(11) Rectal examination.
(12) Appetite.
(13) Blood findings.

Unimportant:

(14) Nervous symptoms.
(15) Headache.
(16) Hysteria.
(17) Skin eruptions.

DIFFERENTIAL DIAGNOSIS.

Unfortunately, limited time precludes my discussing each condition in turn—however, the first two will be discussed in detail, and will, perhaps, obviate future mistakes.

A differential diagnosis must be made from the following:

(1) Pneumonia.
(2) Paralytic or toxic ileus.
(3) Calculi (ureter).
(4) Pyelitis.
(5) Peritonitis.
  a. Streptococcus.
  b. Pneumococcus.
(6) Abdominal tuberculosis.
(7) Intussusception.
(8) Malignancy.
(9) Intestinal parasites.
(10) Ulcers.
(11) Acidosis.
(12) Gastro-intestinal indigestion.
(13) Chronic intestinal indigestion.
(14) Typhoid and para-typhoid fever.
(15) Hysteria.
(16) Acute arthritis of hip.
(17) Vertebral arthritis.
(18) Salpingitis.

DIFFERENTIAL DIAGNOSIS OF ACUTE APPENDICITIS.*

		Pneumonia	*Appendicitis*
(1)	History	Generally secondary—preceded by cold or cough.	Usually primary — if secondondary — previous intestinal upset.
(2)	Facies	Anxious expression—alae nasi—playing noticeable—flushed.	Drawn expression when rupture takes place—pale.
(3)	Vessels in neck	Marked pulsation.	None visible.
(4)	Respiratory signs	Quickened respiration—abdominal breathing — expiratory grunt.	Absence of breathing signs.
(5)	Abdominal tenderness	Upper quadrants—right and left—No more intense on deep palpation.	Local if uncomplicated — More marked on deep pressure.
(6)	Abdominal pain	Not common — Constant—Usually referred to right side.	Always present—Colicky—General at first—becoming local with rupture — absence of pain.
(7)	Vomiting	Precedes the diagnosis and not constant. (14 per cent Helmholz) (36a)	Occurs during the entire attack—associated in 70 per cent of cases (Helmholz).
(8)	Diarrhea	Common.	Uncommon — usually alternating with constipation.
(9)	Rectal examination	Negative.	Positive—Tenderness on right side.
(10)	Rest	Sleeps peacefully at times.	Never quiet—always restless.
(11)	Temperature	Usually high—At times hyperexia.	Not constant. 99° to 105°.
(12)	Blood count	15,000—40,000.	Average 10,000 to 20,000. At times leukopenia or normal count.
(13)	X-ray examination of chest	Positive—even with negative physical signs.	Negative.

*Mayo Clinic (Helmholz) with modifications.

Adams and Berger(37) (1922) found in 145 cases of pneumonia in children from two to fifteen years of age, 17.5 per cent had been incorrectly diagnosed as acute appendicitis.

ILEUS.

Emphatically speaking, I do not believe that a paralytic or a toxic ileus is ever present in a child. At times in respiratory processes there has been marked distention of the abdomen with limited expulsion of flatus—especially in pneumonias—this is the nearest approach. But a definite, clear-cut ileus has never been in my practice and has not been described by those whose experience justify satisfying conclusions.

Two cases Nos. 23 and 28 were diagnosed as such, but a closer perusal of these children and surgical interventions proved them to be general peritonitis, secondary to a gangrenous appendix, and not a paralytic ileus.

PAIN.

Pain, the most constant symptom, was observed in the larger proportion of my cases—absent in about 15 per cent. There are times when the physician does not witness the attack—it is over in a few seconds—but the parents' description of its presence is too vivid to be overlooked.

The classical textbook cases—the ones we all diagnose—where pain over McBurney's point is elicited, is seen in but a few cases occurring in childhood. It is doubtful to me, even in these children, whether at the onset of the attack the pain was localized in the lower right quadrant.

Where the reader has been able to follow his cases, all types included, it has been his experience to find the pain more pronounced in the region of the umbilicus and above it rather than in the expected quadrant. When examining your case, if nature has not flexed the thigh on the abdomen—you do it—for in your examination a slight rigidity may preclude your obtaining pain on pressure where no other signs of it were gained either through previous examinations or subjectively from the patient. Flinching means much. *Do not place too much reliability in what the child tells you.* Colicky abdominal pains should be thought of seriously. When present are very significant—indeed placing the appendix in the category of being eliminated first in a differential diagnosis. In a few cases extreme weakness, general pallor or pallor around lips are expressions of pain in those too young or else unable to tell one of their particular distress. *Frequent umbilical pain should arouse the suspicion of an indigestion and frequent indigestions of an appendix.* Extreme pains are essentially either the forerunner of a rupture; a kink of the appendix or the presence of intestinal parasites within the appendix. Remember that—with rupture temporaily at least—there is an absence of pain, only to return when general peritonitis is evident. It is poor judgment to mask a questionable attack with a drug until you are sure of your diagnosis. If you doubt pain, permit the child to sit in the erect position. If pain is absent he will not complain—if it is influenced by the appendix he will refuse to sit in that position.

CHART.

Pain—General, 7 cases.
Right inguinal region, 10 cases.
Umbilical and upper quadrants, 13 cases.
Extreme, 7 cases.
Minor, 27 cases.
Constant, 16 cases.
Intermittent, 15 cases.
Not classified, 3 cases.

NAUSEA, VOMITING, ACIDOSIS AND BELCHING.

Vomiting is a common symptom of appendicitis; it may occur with each feeding; it may or may not bear relation to food, and is not periodic in its manifestations, occurring both day and night.

Richter[38] (1924) mentions it occurring in 79.16 per cent at the onset of his two hundred and eight cases. In certain instances it may not be the initial symptom, but as the process increases, ultimately, in the end, in some form or other, it will become part of the picture.

Emesis may either be in the light of a regurgitation—the common type—or occur in selected cases, as projectile vomiting. With the latter, rupture, abscess (not recorded in this series) or peritonitis are likely responsible for the severity of the symptom.

In a few cases the vomiting may be so trivial and the vomitus so small in amount as to escape the attention of the parent until such a time is reached when either the occurrence increases in number, or the attacks in intensity—then it is recognized. Vomiting can become a very troublesome part of appendicitis—so exaggerated at times that the mention or sight of food may be sufficient to produce vomiting.

Belching, either after a meal, or between meals, with or without nausea, is almost certain an indication of appendicitis.

Acidosis—recurrent acidosis—associated with intestinal disorders—where there are no indiscretions of diet, increasing in number of spells and duration, is essentially appendicitis.

CHART.

Vomiting—

a. Marked, 13 cases.

b. Not marked, 21 cases.

Aversion to food, 2 cases.

Acidosis, 9 cases.

Belching, 4 cases.

TEMPERATURE.

Temperature may not be a criterion of the severity of an acute attack, for at the onset an elevation of 99° may be passed unnoticed. On the other hand, a gradual increase, or an abrupt rise, should justify the suspicion of suppuration—generally under 103°, in a few instances reaching 104°.

Fever may be absent entirely in the chronic cases. In certain children, however, at irregular intervals, during the 24 hours, if peroidic recordations of the temperature are made, slight elevations will be noted. In three of this group, the patients were subnormal.

BOWEL DISTURBANCES.

Our attention to "something out of the ordinary" is often aroused when the matter of frequent bowel disturbances are discussed. Unmistakably—habitual constipation has its story—lack of appetite, aversion to food, unbalanced diet, atony of bowels—a viscious circle. Where is the primary trouble?

And then the other extreme—diarrhea. "No matter how careful I am about his diet, my child has periodic attacks of diarrhea," or "my child has frequent evacuations every day, regardless of her diet." With both stories, frequent purgations follow. And lastly there is the combined type diarrhea, alternating with constipation—exceptional but diagnostic.

TABLE.

Constipation—marked	5	cases
Diarrhea	4	"
Constipation alternating with diarrhea	4	"
No definite picture, but tendency to constipation	21	"
Total	34	cases

In the future, it will be my routine to examine the feces, not one, but several, in an attempt to determine whether or not intestinal parasites play an important part in predisposing children to appendicitis. Unfortunately, only six examinations were made on individual children, repeated once, and of those, three had ova of pin worms, one of round worms, and three were negative. Strange to relate, that the three cases where pin worms were found in the appendix, had negative feces examinations prior to their operation.

ABDOMINAL TENDERNESS—ABDOMINAL RIGIDITY—ABDOMINAL DISTENTION.

It is rather difficult, in certain children, to separate tenderness, rigidity and distention. Usually, tenderness and rigidity are associated, and if the process has continued, either diagnosed or undiagnosed, distention will eventually be seen. In chronic cases, tenderness is more apt to be present than in acute cases, for when the latter is the type, the rigidity, at times very marked, prevents one from properly palpating the abdomen. Distention is only met with where rupture has taken place, where general peritonitis has followed the former, or else, in a limited number of children, where constipation and eructations are extreme. This is apt to be more gastric than intestinal distention.

In practically every case with the slightest peritonitis, in retrocecal appendicitis and in all acute and sub-acute masifestations, the right thigh will be flexed on the abdomen. One of the most important aids in the diagnosis of acute abdominal disease is the early reaction of the viscera contained therein. In the early stage, of the acute cases, there is rigidity of the affected side, and the other symptoms that go with it, but as the process becomes more pathological and extensive, the abdomen at first below the umbilicus, and later involving the entire area, reacts, and one feels on palpation a sense of rigidity, better, a touch, revealing increased abdominal ten-

sion when the hand is placed gently on the abdomen.

PAIN ON MICTURITION.

My attention has often been called to painful micturition being an associated symptom of appendicitis. This has not been so in my cases, although a small proportion of these children had pyelitis sometime before their present illnesses. In three cases, pain on micturation was complained of.

RECTAL EXAMINATION.

Karewski[39] (1897), and Seltzer[40] (1901) as noted by Kelly[41] (1905) have demonstrated that in almost every case in which the disease has advanced beyond the appendix, the extension will undoubtedly take place along the right pelvic wall where inflammatory processes can be felt.

This method does not seem very practical when applied to children, and perhaps, can only be done satisfactorily just at the time when the child is beginning to be anaesthetized. In only three cases was this examination employed and apparently substantiated at the time of operation. What has been your experience in this regard?

Kelly[42] (1905) seemingly enthusiastic, remarks "examination by the rectum should never be neglected since the adult finger reaches higher in the infantile pelvis than that of the adult, so the suspected area is more easier touched."

APPETITE.

A poor appetite may not be indicative of appendicitis, but a diseased appendix may be responsible for a lack of appetitte. While no gastric examinations have been made in this series, there appears to be a hypoacidity, for when chronic cases are given dilute hydrochloride acid in small amounts, this temporizes the condition temporarily and the appetite is noticeably improved.

CHART.

Picky (a desire for certain foods)	8 cases
Poor	16 "
Good	8 "
Aversion to food	2 "
Total	34 cases

BLOOD FINDINGS.

Fowler[43] (1899) first called our attention to its significance. Robins[43a] (1900) mentioned blood counts as helpful aid in the diagnosis of appendicitis. Kelly[44] (1905) in his masterpiece contribution does not discuss this topic at length.

Sondern[45] (1905) published a very useful chart of the blood examinations in surgical diagnosis—which is of great value with some modifications in the interpretation of appendicitis in childhood.

THE SONDERN BLOOD PICTURE CHART.

Slight increase in polymorphonuclears indicates mild infection.

Decided increase in polymorphonuclears indicates severe infection.

Slight increase in polymorphonuclears with slight leukocytosis indicates mild infection with definite resistance.

Decided increase in polymorphonuclears with decided leukocytosis indicates severe infection with good resistance.

Decided increase in polymorphonuclears with slight leukocytosis indicates severe infection with poor resistance.

Decided increase in polymorphonuclears with no leukocytosis indicates severe infction with no resistance.

Progressive increase in polymorphonuclears with diminishing leukocytosis indicates increasing severity of infection and decreasing resistance.

Gradual decrease in polymorphonuclears with decreasing leukocytosis indicates improvement.

NORMAL BLOOD COUNTS.

Carstanjen[46] (1900)

	Differential Count
N—Neutrophils	1- 6 months
S—Small mononuclears	6-12 months
	1- 2 years
E—Eosinophils	2- 3 years
T—Transitional	3- 4 years
L—Large mononuclears	4- 5 years

Karnitsky[47] (1903)

Age Years	Total White Count	% of Neutrophils	% of lymphocytes	% of eosinophils
1- 2	12,500			
2- 3		30-40	60-75	
3- 4		32-40	45-58	
4- 5	9,400	34-39	45-53	
5- 6		35-59	32-52	
6- 8		37-51	35-52	varies
8-10		40-62	24-46	greatly
10-12	7,900	43-66	22-39	4-8
12-14		47-63	23-40	

Morse[43] (1908)

Under 2 years, total white	10,000 to 14,000
Neutrophils	25 to 45%
Small mononuclears	40 to 50%
Large mononuclears	10%
Eosinophils	1 to 5%

Rabinowitsch[49] (1912)

Ages 1 and 15 years, total white	6,500 to 8,000
1st year neutrophils	30%
15th year neutrophils	68%
Small mononuclears	61%
Small mononuclears	23%

Transitional cells vary 2.5 to 3.2%; eosinophils 3.6 to 4.1%. Maximum 7.5% during 7th and 8th years.

Before the fifth year the lymphocytes exceed the neutrophils.

In my experience, the blood counts in children have been similar to the findings of Rabinowitsch. In brief, remember the following:

(1) Under five years—the neutrophil count is what the small mononuclear is in adult life—20 to 30%.

(2) Under five years—the small mononuclear count is what the neutrophil count is in adult life—60 to 70%.

N	S	E	T	L
In Per Cent				
34	50	3½	10½	.5
41	49	½	8	.9
42	47	3	7½	.4
48	38	4	8	.7
53	33	5½	8	.5
61	26	6	7	.3

(3) Over five years—the neutrophils increase and the small mononuclears decrease—that by the tenth year the adult count is noted.

(4) The total white count averages 6,500 to 8,000.

(5) This data excludes the blood findings of the first month.

In this series the leukocyte count has varied between 4500 and 19,000 in the acute cases—save one—28,000, where this case was complicated and the appendix ruptured.

Of the two blood pictures—the total white or the differential count—the interpretation of the latter is much more important.

In case No. 1—where the blood was checked—the differential count determined our procedure. A leukopenia was present.

In case No. 11 the acute stage was about to subside, as illustrated in the second blood count, but a very definite pathological appendix removed.

The greater he percenage of neutrophils in comparison to the total white count, the greater the probability that pus has formed.

Some one has rightly stated the total white count is of questionable value, the polymorphonuclear count is of much value, and the combined count is of the greatest value."

When the appendix has ruptured both the total and differential neutrophilic count diminishes, a very grave picture.

As concerns the various blood manifestations in chronic cases—two cases, Nos. 7 and 8, are given—marked leukopenias. As a matter of interest, he improvement in these children after appendectomies were amongst the most marked in this series.

ANEMIA.

More than seventy-five (75) per cent of the chronic cases revealed a secondary anemia, and of this number eighteen (18) children had a hemoglobin less than 60 per cent.

EOSINOPHILS.

In contrast to the findings of other clinicians—a marked eosinophilia was not encountered, and in the three instances where pin worms were discovered in the appendices these cases showed no alteration in the number of these cells whatsoever.

ACUTE APPENDICITIS

Case 1	1st count	6,000; N. 84
Within 4 hrs.	2nd count	4,500; N. 86
Case 3	1st count	15,000; N. 90
Within 6 hrs.	2nd count	15,000; N. 91
Case 9	1st count	8,000; N. 75
Within 24 hrs.	2nd count	12,750; N. 80
Case 10	1st count	14,750; N. 75
Within 12 hrs.	2nd count	9,100; N. 67
	3rd count	17,500; N. 76
Case 11	1st count	8,000; N. 74
Within 4 hrs.	2nd count	5,000; N. 60
Case 14	1st count	18,150; N. 83
Case 33	1st count	15,000; N. 83
Case 24	1st count	17,250; N. 75
Within 12 hrs.	2nd count	12,000; N. 90

ACUTE RUPTURED APPENDICITIS

Case 15	1st count	16,500; N. 89
Case 18	1st count	19,000; N. 86
Case 19	1st count	28,000; N. 88
Case 21	1st count	16,000; N. 82
Case 23	1st count	11,750; N. 77
Case 16	1st count	15,000; N. 83
Case 20	1st count	12,000; N. 89
Case 21	1st count	16,900; N. 82
Case 28	1st count	13,200; N. 66
Three days apart	2nd count	10,800; N. 53

CHRONIC APPENDICITIS WITH MARKED LEUKOPENIA

Case 7	1st count	3,750; N. 50
Case 8	1st count	2,750; N. 61
	2nd count	3,000; N. 54

APPENDICITIS FROM OTHER SOURCES.

These different types of appendicitis are mentioned but not discussed:

(1) Tuberculosis.
(2) Actinomycosis.
(3) Carcinoma.
(4) Sarcoma.
(5) Appendicitis in a hernial sac.
(6) Appendicitis in complication with acute infectious disease.

AFTERMATH.

The aftermath pertinent to improvement in this study, not only in weight, but in general health, is as follows:

Marked improvement	20 cases
Some improvement	5 "
Questionable improvement	4 "
Too recent to be judged	2 "
Died	3 "

Those cases that did not show marked improvement are the ones who have been operated on for a period less than three months.

ROENTGEN-RAY DIAGNOSIS OF APPENDICITIS.

Roentgen-ray diagnosis of appendicitis *per se* has but little value, unless the appendix remains filled at the end of 48 hours, and more especially positive if there is marked cecal stasis associated with it. If an appendix cannot be visualized, this, in itself, would not negative the appendix, for a fecolith could obstruct the lumen, the kink could be located at the base, or else, obstruction within other than those mentioned are possibilities. If the emptying is delayed for 24 hours alone, but the organ is definitely sensitive to palpation, it is reasonable to accept that it is diseased. A marked pylorospasm, with a partially filled appendix at the end of 24 hours, should call our attention to a serious consideration of this possibility. In other words, a roentgenologic diagnosis must be considered a part of the clinical manifestations and in itself must not be accepted as conclusive.

RADIOGRAPHIC EXAMINATIONS OF GASTRO-INTESTINAL TRACT
(Operative Cases)

Number	STOMACH	Small Intestines	COLON	APPENDIX	OBSERVATION		CONCLUSIONS
					24 HOURS	48 HOURS	
2				Long, patulous-sensitive with stasis			Chronic appendix
5	Empties slowly—Small retention—5 hours		Statis. Dilatation colon and sigmoid	Not visualized	Moderate pylo—ileal stasis: colonic irritation		Pylorospasm; ileal stasis: colonic irritation
6	Spasm-pylorus	Ileal Stasis+	Caecal Stasis	Not visualized		Retro-caecal filled appendix	Retro-caecal appendix
7	1 Year Apart **1st Series**—Retention 4 hours **2nd Series**—Marked pylorospasm. Retention 6 hours		Marked dilatation—descending. Moderate stasis	Not visualized	Moderate colonic stasis	Slight colonic stasis	**1st Series**—None **2nd Series**—Pylorospasm; stasis of colon; dilatation desending colon.
8				Partially filled—unusually long	Partially filled appendix		Probable pathologic appendix
9		Moderate ilealstasis	Spasm-marked—large bowel	Filled appendix—(partially)	Marked caecal and colonic stasis		Reflex spasm of colon—probably the appendix
22	Hypermotility			Kinked	Tip of appendix filled		Chronic appendicitis
26	Fish-hook type—atonic	Ileal stasis		Moderate caecal and colonic stasis			Ileo-caecal and ileal stasis
31	Pylorospasm marked	Ileal retention	Stasis-cecum	Retro-caecal kinked appendix			Retro-caecal kinked appendix
32	½ empty at end of 3 hours ½retention at 6 hours		Ileal stasis—marked	Partial filling of appendix		Marked colonic stasis; spasticity colon—(marked)	Pylorospasm — ileal stasis with adhesions—hypermotility and spasticity of large bowel——possibly chronic appendix
33			Marked irratability	Constriction at base. Caecal stasis and filled appendix		Definite retention in region of appendix	Pylorospasm; colonic irritability; probable chronic appendix
34	Pylorospasm		Stasis	Not seen	Moderate colonic stasis		Pylorospasm, ileostasis, moderate colonic stasis

MORTALITY.

In this study, three (3) died and thirty-one (31) recovered. Of the three that succumbed, two were seen in consultation after they had been ill for five days or more, and one just twelve hours before death—the latter being moribund when brought into the hospital. Two of these three were under two years of age. In other words, every one of these cases responded to surgical intervention, and other than a few exceptions where rupture had taken place, had uneventful recoveries.

Other statistics regarding the death rate is as follows:

Bolling[50] (1924), under 5 years, 20%.

Beekman[51] (1924), 35% under five years in first series. 25.6% under five years in second series.

Schlossman[52] (1922), in the nursling almost 100%; in the second year, 72%, between 1st and 2nd years, two to three times greater than in the adult.

CONCLUSIONS.

1. Appendicitis in infancy is very rare—less than a hundred cases have been collected under two years of age, two of which are reported in this series; relatively more common than generally accepted between ages of two and fourteen years.

2. Pain, vomiting, abdominal tenderness and rigidity, fever and altered appetites are the more frequent symptoms.

3. "Intestinal upsets," "indigestions," "stomachaches," "obstinate constipations," "unaccountable diarrheas"—should be studied and purgatives withheld until appendicitis has been eliminated.

4. Frequent attacks of acidosis—associated with abdominal pain—becoming more marked and more frequent—where indescretions of diet have not been practiced—are potential cases of appendicitis.

5. Be positive that you have eliminated pneumonia before appendicitis has been diagnosed.

6. Utilize roentgen-ray and laboratory facilities in doubtful cases—especially the blood; make repeated counts—the differential count being of much more value than the total white count and the combination of both invaluable.

7. Paralytic ileus in a child is usually peritonitis.

8. In this series of thirty-four cases—only three succumbed. Of these all were seen after they had been ill for many days and were moribund and died within twenty-four hours after examination. With these excluded all of the remaining thirty-one recovered. The mortality as reported by others may exceed 35 per cent.

9. Remember what Kelly said: "Every case of frank appendicitis should be operated upon if seen in the early stages of the disease."

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DISCUSSION.

Dr. John F. Dicks: My talk on this subject will be brief, as I just wish to run over a few important points brought out by Dr. Bloom. The first point he stresses is that appendicitis in infants under two years is a rare condition; the second point stressed is that appendicitis from that age to ten years is more common than the average physician thinks.

I have put down some statistics taken from a report by Dr. J. B. Deaver of Philadelphia on 3000 cases of appendicitis, in which the age incidence corresponds with Dr. Bloom's observations. In Deaver's cases from 1 to 10 years of age, 3.33 per cent had appendicitis; from 11 to 20, as the person grows older, the rate was 28.63 per cent; from 21 to 30, it was highest, showing 37.48 per cent; from 31 to 40, there was a decided decrease to 19 per cent; from 41 to 50 it was 8 per cent; from 61 to 70, 0.64 per cent; from 71 to 80, 0.10 per cent. In other words, his statistics coincided with Dr. Bloom's statement. From the age of one to ten years, 3.33 per cent had appendicitis, which is a fairly large percentage for children—higher than we think in that age of childhood.

Another point of interest to me is the roentgen-ray diagnosis of appendicitis. Is it an appendix that is visualized that is positive for appendicitis, or is it one that is not visualized? If after 48 hours the appendix still contains some of the barium then you might say it is suspicious of appendicitis, but in arriving at a diagnosis we should consider our other findings in conjunction with the roentgenographic study. To my mind, not visualizing the appendix does not mean that the patient has appendicitis.

What Dr. Bloom said about the blood count is an interesting feature. Not many of us know that in infancy the leukocytes and the small mononuclears cross at the age of five. In other words, in early childhood the polys are low and the small mononuclears are high.

I have enjoyed Dr. Bloom's paper very much and he deserves much credit for the way he has presented it.

Dr. E. Denegre Martin: In discussing this subject I will try to confine my remarks to a few facts. One of the most difficult things in my experience has been the diagnosis of appendicitis in infants. You may have all the symptoms and all of the suggestions that have been given for years and yet fail in your diagnosis because each case is a study in itself.

The most difficult thing, of course, is to get a history—that is almost impossible. I am speaking now of infants under five years of age. When you are called in to see a patient, watch it; note the general appearance and position of the child, frequently the right leg is drawn up. Then you will have to arrive at your diagnosis by exclusion, because we know of cases that have been mistaken for pneumonia, intussusception, diarrhea, etc. However, with a careful examination you can exclude pneumonia. Intussusception can be recognized from the history; usually there are frequent stools, tenesmus and a palpable mass. If the child can be quieted, you may by palpation be able to locate the pain; this, it is true, may be in any part of the abdomen, but by repeated palpation eventually pain will be located on the right side—not necessarily in the iliac fossa, sometimes under the costal arch. Very often the appendix is retrocecal and down in the pelvis. Rectal examination always helps, but it is a difficult thing to do. Introducing the finger into the rectum will cause as much pain as the condition. Of course, this can be done under an anesthetic (and that is frequently true in the adult case as well) where you can control them. The question is to watch these children. You will usually find what you are seeking, not by deep palpation, but gentle palpation, and if the children are old enough and you win their confidence, they will co-operate.

Another thing not often mentioned in symptoms is a child crying and complaining of pain, then in a little while experiencing relief; if the pain persists and is more or less located in the region mentioned above, you may pretty well decide that it is a case of appendicitis. The roentgen study and blood count are sometimes of assistance, but are not always to be depended on and are to be considered only as adjuncts in diagnosis. You have to arrive at the diagnosis by elimination and very often you are taking a chance. The temperature is not always high, only in ex-

ceptional cases, until there is a rupture and peritonitis develops.

Today we are making more diagnoses and the appendiceal abscess is less frequently encountered. Formerly these abscesses were more common because we were not able to make the diagnoses. We are making more and earlier diagnoses today because the specialist (pediatrist) as well as the general practitioner, is looking after these conditions. Appendicitis in children is commoner than we think. Take the history of adults today, or young people, and many will give you a history of a previous attack. Of course, in childhood the lumen of the apendix is more patulous and there is apt to be drainage, so they get over an attack. This, however, is not the case with the adult. After the age of ten years I believe appendicitis is almost as common as in the adult. The youngest case I have seen was in an infant two days old. The appendix was five inches in length. It seems that the younger they are the larger the appendix in proportion.

I do not think I can add much to this, but would emphasize that in appendicitis in children there is no rule to which you can adhere to arrive at a correct diagnosis. You must make it by exclusion. Gather all the information possible by observation, physical examination, roentgen-ray and laboratory study, obtain from the parents what history you can, and after you have quited and won the confidence of the child, you will make a diagnosis very much better than if you are in a hurry.

Dr. E. D. Fenner: I cannot allow as carefully prepared and interesting a paper as this to pass without comment, particularly as it is a subject in which I am naturally and deeply interested. There is one thing which has to be borne in mind, and that is when men get up and discuss appendicitis in childhood the job of sticking to the infant (as so beautifully brought out by Dr. Bloom) is about as difficult for the average man who is talking as it is for the fellow who is not accustomed to it to stand up on ice.

Dr. Royster, in his recent monograph on appendicitis, says: "Probably the most positive evidence that a case of abdominal distention and pain is not appendicitis is that the pain should begin in the right iliac fossa; if appendicitis, it begins around the umbilicus and later settles in the right quadrant."

A point I would like to call attention to is this: I am convinced that a good many cases of appendicitis die and are never recognized, particularly in very young children. In the good old days here in New Orleans (this may come to the minds of some of the older men at this meeting), when the "acidosis madness" had the profession absolutely by the throat and children were being killed off in numbers every year with huge doses of soda, I am sure that many were buried under the diagnosis of acidosis who died of appendicitis. In connection with this matter, the relation of acidosis to appendicitis, Professor Camby, author of many text books in French and Professor of the University of Paris for many years, something like twelve to fourteen years ago, published an article in the "French Archives of Children's Diseases" in which he claimed that all cases of acidosis in children were chronic appendicitis. He reported 150 cases of acidosis with acetonuria, diagnosed as appendicitis, but brought no evidence to back his statement, offered you nothing to bolster your faith in his theory—nothing but his great experience.

When you get a child so young that he cannot tell you where his pain is located, I think you might possibly get some information by rectal examination. But the man that can derive any genuine information in regard to the condition of the appendix by sticking his finger in the rectum of a child eighteen to twenty months old has, in my opinion, a most vivid imagination. With children five to six years of age, when you have achieved a relation with them where they are no longer screaming and will tell you the truth, this procedure may throw some light on the subject. I do not think it is a wise thing for any man to believe that rectal examination in early childhood is going to prove very illuminating in regard to mild attacks of appendicitis. Of course, we all admit that the diagnosis of appedicitis in children under two years is exceedingly difficult and I am under the impression that most of these cases we operate on,, which prove to be appendicitis, were considered by no means certain diagnoses before the abdomen was opened.

Dr. E. C. Samuel: I wish to say just a few words in regard to the diagnosis of chronic appendicitis. I had the pleasure of looking over quite a number of these cases for Dr. Bloom and would like to correct the impression that the visualization of the appendix is an absolute essential to the diagnosis of chronic appendicitis from a roentgenological standpoint. The appendix that fills in 24 hours and empties is not considered by us (or any roentgenologist) chronic appendicitis, but when the appendix that fills refuses after pugation to empty in 36 to 48 hours, we consider that there is some trouble with it.

In the appendix that will not visualize there should be other signs on which to base your diagnosis. In children pyloric spasm is about 50 per cent more intense than in the adult with chronic appendicitis, and when there is food retention in

the stomach beyond the four hour period in a young child and the pylorus shuts down tight and refuses to open after some time passes, you must realize that the spasm means something and is responsible for some of the pain.

Again, when these cases of chronic appendicitis have gone long enough there is evidence of inflammation around the ileo-cecal junction; kinks, congenital bands which bind the ileum to the cecum, or else evidence of chronic inflammation from a chronically inflamed appendix.

I merely wanted to enlighten you on this point, that the roentgenologist does not consider the visibility of the appendix essential in making a diagnosis of chronic appendicitis.

Dr. Charles J. Bloom (closing): I appreciate the discussions on appendicitis in childhood that have taken place, and in closing would like to emphasize one or two points.

The first has reference to my position in regard to roentgen-ray study as an aid in diognosis. Unfortunately, in the limited time allotted to the perusal of the paper, the part covering that phase of the subject, which I will now read to you, was skipped. "Roentgen-ray diagnosis *per se* has but little value unless the appendix remains filled at the end of 48 hours, and more especially positive if there is marked cecal stasis associated with it. If the appendix cannot be visualized this, in itself, would not negative the appendix, for a fecalith could obstruct the lumen, the kink could be located at the base, or else, obstruction within other than those mentioned are possibilities. If the emptying is delayed for twenty-four hours alone but the organ is definitely sensitive to palpation, it is reasonable to accept that it is diseased. A marked pylorospasm with a partially filled appendix at the end of twenty-four hours should call our attention to a serious consideration of this possibility. In other words, the roentgen-ray diagnosis must be considered a part of the clinical manifestations and, in itself, must not be accepted as conclusive."

Regarding Dr. Royster's interpretation of pain, as mentioned by Dr. Fenner, I tried, as far as able, to bring out that point that in appendicitis in children you seldom find that the pain is primarily located in the right inguinal fossa.

I am glad to hear the commends regarding examination by rectum. I had so little knowledge of it that I was anxious to know what the experience of others had been.

RADIUM IN CANCER OF THE CERVIX.*

General Remarks with Report of Some Cases.

JOSEPH COHEN, M. D.,

New Orleans.

Cancer of the cervix can be cured and radium can cure it. Cancer is a disease of the cell, perhaps of the cell nucleus, which results from an intrinsic physico-chemical disturbance. It always commences as a local disease, developing with time, the local appearance being always preceded by a precancerous state when a cure is much easier. The disappearance of the original signs and symptoms, both local and constitutional for a period of five years, constitutes the accepted interpretation of cure.

The incidence of cancer in general is high. Sir James Paget during a conversation some forty years ago remarked that he was convinced everyone would die of cancer if he or she lived long enough. The U. S. Census Bureau reports that one in every ten adults now living in the United States will die of cancer. Between the ages of 45 and 65 one in every five deaths among women is due to cancer. Cervical cancer ranks third in the human family of carcinomata, its annual toll in the United States along being ten thousand.

Cancer of the cervix is on the increase and this increase is an actual one and not a relative one. Neither our refined and more accurate methods of diagnosis, nor the lengthening of the span of life can account for it; and in its affection, it is not partial, embracing all peoples and all countries; and how unheedful we are of its early approach is illustrated by the fact that doctors' wives as well as those of laymen come in the late stages for treatment.

Its cause is not fully known. There are various theories, some based on experi-

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

mental observations, others on clinical ones, some on statistical data, others on fervent hopes and quackish speculations, and each has its supporters. But from all these, some repeatedly proven observations have been accepted as truisms. For all practical purposes it is neither contagious nor infectious. It is not inherited—one may inherit a certain susceptibility which under the proper stimulus may render the individual more prone to develop the disease. Given a susceptible individual chronic irritation will produce the cancer, but cancer itself is not inherited.

Cervical cancer is not created over night nor in the Biblical six days. The early signs and symptoms are not typical, therefore, is a diagnosis sometimes difficult. With a slow onset it has a protracted precancerous stage that should be looked upon with suspicion. The irritated, the inflamed, the discharging cervix, the lacerated and the ulcerated cervix, no matter how mild in appearance, should be carefully watched and treatment instituted promptly. Each of the above may be a forerunner of cancer. If necessary a biopsy is justified for diagnostic purposes. The majority of the best opinions, gleaned from observations on laboratory animals as well as human beings, find no tenable reasons against biopsy. Once the disease commences it spreads rapidly, either by direct continuity or through the lymphatics; therefore, will an early diagnosis coupled with prompt and proper treatment give more cures.

How can we prevent it? The exact cause being unknown, there is no specific, but certain measures help. In this, the physician as well as the patient plays an important role. Cleanliness and cancerless would be a good slogan. Personal hygiene on the part of every woman should be advocated. A daily cleansing douche or two should be religiously taken. It is as needful as cleaning her teeth. She should be encouraged to seek periodic examinations. She should be taught that cancer of the cervix in its early stages is a curable disease, that the great mortality comes from neglected cases, the same as the mortality from neglected appendicitis is greater.

James Ewing says "Cancer of the genitals is due to uncleanliness," and W. Sampson Handley remarks that there is a certain form of cancer which never occurs in Jewish men, connecting this fact with the ritual operation performed upon all Jewish male infants. Ewing further adds that cancer of the uterus is distinctly less frequent in Jewish women than in some other races, and that circumcision would reduce male cancer 2 per cent. Might not we hope that this hygienic measure would also reduce cervical cancer? We, doctors, should always be on guard and taught to recognize early signs and symptoms. Lacerations should be repaired early; cervicitis and endocervicitis should be vigorously and promptly treated. These measures would reduce the number of our patients developing cancer and fewer would need treatment.

The treatment should be based on the extent of the growth. Where there is present a fixation of tissue indicating metastases, the prognosis is unfavorable. Biopsy and the microscope will disclose the degree of anaplasia or also the degree of differentiation, the prognosis depending on the degree of histologic malignancy. A high degree of anaplasia is always associated with a poor prognosis while a high degree of differentiation means a favorable one. On account of the uterus being sandwiched in between the bladder and the rectum and flanked by the ureters any extensive operation, such as the Wertheim, is attended by a high initial mortality.

Cancer of the cervix lends itself ideally for radium treatment whether early or advanced. In advanced cases radium applied locally affords much better results than obtained by any other method,

including surgery. In the hopeless cases, the palliative results are superior to those surgery can offer. In early carcinoma radium is used exclusively in some clinics. From the results obtained with radium in the past ten years at the Memorial Hospital in New York, Burton J. Lee, the attending surgeon, concluded that cancer of the cervix is essentially a radium case and that the results are better than surgery can offer. Early diagnosis and early effective treatment are the keynotes in radium therapy. Treatment by a dose sufficiently large to cure cannot be repeated a second time in the same place, for the biologic reason, that radium produces two different effects in normal tissue and in neoplastic tissue; the latter becomes progressively radio-immune, while normal tissue becomes more and more radio-sensitive. Therefore, repeated doses will cause destruction and necrosis.

How does radium act? This is a mooted question, but one fact is certain: There is a destruction of the terminal arterioles resulting in a loss of blood supply and lack of nourishment to the tumors accompanied by the formation of a cordon of dense fibrous tissue. If the dosage is insufficient, this belt of fibrous tissue may encapsulate some of the living cancer cells which due to the lack of nourishment may remain in a dormant state for years and then suddenly bestir themselves. Repeated examinations will immediately recognize this reappearance and additional radium therapy may take care of these remaining cells. In the war against cancer we must always be on guard, prepared to destroy the enemy at its every appearance. Examinations of patients should be made with a view not only to diagnosis but to prognosis and treatment and we must not confuse the necrosis due to excessive dosage with recurrence due to insufficient dosage.

What is the sufficient dose? Each case will answer that question for itself. Destructive radiation must reach each cancer cell, otherwise the growth may recommence; at the same time this radiation intensity must be so small as to affect the normal surrounding tissue as little as possible since this tissue later assumes the work of regeneration and replacement of the parts destroyed by radiation. In precancerous conditions non-destructive doses may cure, but in a diagnosed cancerous condition initial destructive doses only should be used, and this is in line with the conclusion drawn by the Harvard Cancer Commission, that small doses of radium are not only of little benefit to the patient but they may increase the rapidity of the development of the disease.

In applying the radium, measures against its dislodgment and for the protection of the bladder and rectum should be taken, thus preventing vesico-vaginal and recto-vaginal fistulae. This, following the method of Dr. Julian G. Hirsch can be accomplished by the use of lead sheeting imbedded in parafin moulded to suit each individual case. Besides the local effects of radium there are constitutional ones noticed immediately in the form of prostration, nausea, anorexia, increase in temperature, and in addition, the more remote ones, observed especially, in the blood stream, such as leukopenia, increase in sedimentation rate, diminution in hemoglobin and in the numbers as well as the volume of the red cells. But this is only of short duration, lasting for about three weeks. As soon as possible, the cervical canal should be probed periodically to prevent a stenosis with an accumulation in the uterus of the discharges, whether pus, blood or otherwise. A follow-up system, including the taking of careful notes, should be instituted in each case, to see the results and to guard against any recurrence.

Permit me to demonstrate the value to the patient of the policies herein advocated by the recital of the following: It is my good fortune to be placed in the unique

position of being the third generation, so to speak, in the same office to observe a number of cases of cancer of cervix, some of which are the ones cited below. These were first treated by the late Dr. William Kohlman, who was amongst the pioneers in the use of radium in New Orleans, and after his death by Dr. Julian G. Hirsch, who has been ill since 1924, and since then by me. Briefly summarized they are:

Case 1. Mrs. N. H., aged 34 years. September 26, 1922, diagnosis, carcinoma of cervix. Vaginal examination showed extensive ulcerative lesion of posterior lip. Treatment on September 27, 1922, 2400 mg. hrs. radium. December 6, 1922, 2400 mg. hrs. April 18, 1923, deep roentgen-ray therapy was used. Drs. Samuels and Bowie applied this deep roentgen-ray therapy with the first machine in New Orleans. Today, six years later, patient is well and attending to household duties.

Case 2. Mrs. J. D., aged 54 years. August 18, 1921, vaginal examination revealed cervix indurated, bleeds easily, broad ligaments do not show any marked infiltration, uterus movable. Diagnosis, advanced epedermoid carcinoma, squamous cells. Treatment: August 19, 1921, 1200 mg. hrs. radium. August 23, 1921, 2550 mg. hrs. radium. Today, seven years later, she is well and taking care of her daughter's house.

Case 3. Mrs. M. L., aged 40 years. Vaginal examination, September 20, 1920, showed a cervix enlarged to size of hen's egg, hard and indurated, bleeding easily, tissue breaking about cervical canal, uterus fairly movable, induration about right adnexia. Diagnosis, Epidermoid cancer of cervix and glands. Treatment: Ligation of both internal iliacs with removal of large gland on left, plus 1800 mg. hrs. radium September 23, 1920, and 2035 mg. hrs. on October 9, 1920. Today, eight years later, she is well and working.

Case 4. Mrs. J. S., aged 57 years. Vaginal examination July 8, 1920, showed the cervix completely destroyed from cancer of uterus. Treatment: July 9, 1920, 3200 mg. hrs., August 26, 1920, 1200 mg. hrs., December 3, 1920, 750 mg. hrs. A mother of many children, they mourned her as lost on learning of her cancer at the first visit. Today, eight years later, she keeps house for one of them and has outlived the rest as well as her doctor.

Case 5. Mrs. M. E., aged 50 years, April 4, 1919, was found to have carcinoma of the cervix. April 5, 1919, ligation of internal iliacs plus 500 mg. hrs. April 12, 1919, 500 mg. hrs. Today, nine years later, she is enjoying the hospitality of her daughter.

If these cases of advanced cancer of the cervix, a living tribute to radium, are still present with us from six to nine years after the initial treatment, how many more could be saved by following the suggestions offered here?

DISCUSSION.

Dr. E. Denegre Martin (New Orleans): I enjoyed the paper and am sorry to have missed the first part. I have treated quite a number of these cases and had a similar experience as that of Dr. Cohen. We are coming more and more to the expediency of using radium in lieu of operating. My results have been remarkable, especially in advanced cases.

My first experience with radium therapy was about ten years ago, at the time it was being introduced. A patient came to me complaining of a profuse, bloody discharge. Examination showed the entire vaginal vault filled with a cauliflower growth. We removed the growth and introduced 100 m. hrs. of radium for a 15 hour exposure. Subsequently there was good healing with no evidence of remaining growth. This result, at the present time, we are repeating daily. I have another case of eight years' standing, a woman of forty years of age, who is living and well today. In all, I have had about twenty of these cases; those receiving treatment in the early stages are all well, while those who come to us in the later stages all lived several years.

The beneficial results derived from radium therapy far exceed those obtained by surgery at this time. I believe we will come to the selection of radium altogether in carcinoma of the cervix. However, in using radium it should be applied in large doses, but must be carefully handled and only by those of experience. I have seen vesico-vaginal fistulae, recto-vaginal fistulate and many other distressing conditions following its application.

What we must do, is to make an early diagnosis, or at least try and prevent that very condition that might develop later in the neglected case. Patients who come with lacerated, eroded and infected cervices, no matter what the age, should be looked after at once. Always explain to them the necessity of this examination. A good many of these conditions, lacerations and erosions of the cervix can be cured by a simple operation—sometimes merely a cauterization will suffice. Each case should be carefully studied. Do not limit your examination to the cervix. I wish to take this opportunity of including the breast. I am convinced that malignancy, if taken in the early stage, before metastases sets in, is curable.

Any growth in the breast, whether malignant or not, should be removed. Never fail to enlighten your patients in regard to the importance of these examinations and gradually the existing prejudice against examination, especially in the country where people object so seriously, will be dispelled. Each individual so instructed at time of examination will tell her neighbor and thus spread the gospel that cancer is preventable if discovered sufficiently early to remove the source of the disease and definitely stamp it out.

I believe the possibilities of radium are unlimited and that it is one of the great therapeutic measures introduced into surgery.

Dr. D. I. Hirsch (Monroe): My experience with radium, in the few cases that I have had, does not tally with the successful results reported by others. Dr. Barrow has some very interesting statistics—they all get well. But my cases have been like the story of the wonderful doctor with the sick horse. The veterinarian came along and gave him some medicine. A friend heard about it. "Doctor," he said, "I heard about the medicine you gave your horse and wish I had some for mine." He received it. Two or three days later he returned and reported to the doctor: "I gave my horse that medicine and it died." The doctor replied: "So did mine."

Until I heard Dr. Martin today, my impression was becoming more and more fixed, because of the unsatisfactory results in my cases of malignancy following treatment, that cancer was incurable, or that possibly there were grades of malignancy in tumors of the same tye. However, I am willing to continue the radium therapy, because surgery will not cure.

All patients of mine who received applications of radium were referred to Dr. Barrow for treatment.

Dr. S. C. Barrow (Shreveport): I do not believe that we ought to limit ourselves to the use of radium in the treatment of any case of carcinoma of the cervix. I have been treating these conditions for a good long time, and right from the beginning, as I recall it, fail to put my finger on a case that I have attempted to treat by radium only and am convinced that if some of the men were to back their radium radiation up with filtered roentgen-ray therapy their results would be different. In advanced cases of course all we can do is to palliate them.

I want to say to you this, there is no difference in the biological action of radium than there is in roentgen-rays that will pass through as much as one-half millimeter of copper. If you have roentgen-rays that are sufficiently penetrating to pass that filtration, it has been proved beyond a doubt that cancer cells are inhibted in their growth.

There are a few cases of carcinoma that are limited to the cervix, but while the large majority have not any palpable demonstration of being beyond the cervix, nevertheless they are there. We know that radium, the quantity ordinarily used, will not affect to the extent of death of the carcinoma cell more than two to two and a half, possibly three centimeters from where you put it. Now what is the use of going in there and blowing out what is obvious and leaving carcinoma cells that are going to produce metastases and leave you with the impression that radiation is no good. It has been shown and can be shown in any laboratory that a dose of radiation can be distributed throughout the female pelvis by the combined use of radium application and roentgen-ray exposure just as effectively as you can to any point you may touch.

I do not see the advantage in considering the difference in the grades of malignancy. I believe in giving the maximum dose the tissue will respond to and be through with it. That is the course we try to follow, and when we get them with only a reasonable degree of advancement, lots of them get well.

Dr. H. V. Sims (New Orleans): This discussion is a very deep subject with me, because I have had the gynecological clinic at Charity Hospital for ten years and during that time have watched those poor unfortunates who apply there in such large numbers for treatment in this condition.

The question that repeatedly presents itself to me is: what really is an early case of carcinoma of the cervix, and how often do we run into that type of case? Personally, in the past two years I have seen but two that I thought came under the classification of the really early case, both discovered accidentally during the routine examination of tissue from the cervix. The vast majority of cases that come under our observation are what we call advanced. We still believe in surgery for the early case and divide carcinoma of the cervix into the early, the borderline, the moderately advanced and the advanced case.

Now, with regard to treatment. At the present time I think it is generally accepted that surgery is indicated in the early case, while radium therapy is advanced in all other types. As this includes the borderline and the moderately advanced, as well as the advanced cases, considering the infrequency with which the early case is encountered (in ten years, out of hundreds of cases I discovered but two), it would seem that radium

therapy is indicated in practically all cases of cancer of the cervix. In the usual case, the radium is used preferably by applying a 50 mg. tube into the cervical canal and implanting 10 mg. needles into the surrounding area, allowing this to remain in place 24 hours, giving a total of 2,400 m. hours.

The results of this treatment are wonderful. When the patient returns six weeks later for examination, the sloughing, infected, foul, bleeding mass has practically disappeared and in its place we see nothing but an empty vault, with sometimes a vestige of the growth remaining, which is taken care of by a second application of radium. The patient again reports after two months; at this time the vault is completely healed with no evidence of carcinoma remaining, just the appearance of a scar. The outlook seems promising but, unfortunately, the experience is that in many of these cases when they come back again, although they have gained weight and are apparently enjoying good health, there is every evidence of metastases to the lumbar glands, to the liver, or high up, after which we do not see the patient any more.

The point that baffles me so (and as I say, it a is very serious subject with me because I see so many of these cases in this great clinic at Charity Hospital) is how can we detect the early case? How can we get to the early case? That brings to my mind the subject of periodic general examinations which the different medical societies are advocating. Should we succeed in getting the public to respond, especially women between the ages of 35 and 45, we might find some of those cases of carcinoma that we do not see until moderately advanced. I believe that cancer of the cervix is a very rapidly growing type of tumor, otherwise we would pick up an early case occasionally.

Radium has come to be the accepted treatment in cancer of the cervix and, in line with what Dr. Cohen says, some very happy results are obtained. The local lesions disappear and the patient is very comfortable.

Dr. Joseph Cohen (closing): I thank the doctors who have spoken for the interesting points brought out in discussion.

Convince the public that there is a remedy for cancer and they will come to us for periodic examinations of their own accord. Heretofore, when we discovered that a patient had cancer, the usual comment was: "Well, poor unfortunate, we cannot do anything for her." But today we can hold out the hope of a cure and once we succeed in spreading the gospel that malignancy is curable we will get the early case that we are all looking for.

THE ROENTGEN-RAY TREATMENT OF MALIGNANT BONE TUMORS WITH REPORT OF CASES.*

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A rather critical review of the available literature reveals the fact that there is no large series of cases of malignant bone tumors treated by roentgen-ray reported by any worker or group of workers. Among those who have done pioneer work in this field and have reported results of their work might be mentioned Herendeen, Bloodgood, Costolow and Soiland.

Until rather recently surgery was the only form of treatment considered and usually meant an amputation or resection of the bone involved. Even now surgery is advised by some of the outstanding surgeons and the use of the roentgen-ray discredited in the treatment of some bone lesions which often yield very readily to roentgen-ray treatment. I have especial reference to Ewing's tumor or small round cell sarcoma. The rapidity with which these tumors disappear under roentgen-ray therapy is at times almost magical. They are often not recognized until after they have metastasized at which time the most radical surgeons would hardly dare amputate. In these cases the roentgen-ray treatment is extremely beneficial, for these metastases as well as the primary lesion melt away like snow in the sunshine. I will later show slides of one such case.

The giant cell tumor, or as it is sometimes called, giant cell sarcoma, in the majority of cases yields very readily to roentgen-ray treatment. I may be criticised for calling this a malignant bone tumor. In the greater percentage of cases it is benign but not necessarily always so. In former days many limbs were amputated unnecessarily for this condition which we know today can be and is cured

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often by curettment and roentgen-ray; and Bloodgood reports excellent results with curettement followed by chemical and thermal cauterization. Soiland and Costolow report a case of adamantinoma of the lower jaw treated by roentgen-ray and radium that has been well for four years. Numerous cases of carcinoma of the bones, nearly always metastatic, have been reported as markedly improved after roentgen-ray treatment, being kept free from the excruciating pain for months and even years. I remember very well indeed a patient who came to me more than a year ago with numerous metastases in pelvic bones and femora. She had been taking osteopathic treatments and her pain was relieved only by large doses of morphine. Deep roentgen-ray therapy over the pelvis and hips gave her complete relief from pain and she is now doing her own house work and taking care of her seven children.

Chondrosarcomas respond very slowly to radiation, sometimes weeks elapse before relief of pain and any discernable change in bone is seen.

The advisability of biopsy is still a debatable question. If you treat a patient on roentgen-ray and clinical diagnosis and he gets well your diagnosis will certainly be questioned; if you have a biopsy you are criticised. The three cases which I report today all had biopsies. I can't say that it was detrimental to them; one had metastases when biopsy was performed, the other two show no demonstrable metastases as yet.

Probably a good rule to follow would be that suggested by Dr. Bloodgood. If you feel sure that you are going to amputate, by all means have a biopsy. If it shows a benign lesion you have saved a patient's limb for without the biopsy you would have operated upon the roentgen-ray and clinical findings.

I thoroughly agree with Dr. Bloodgood in a statement that he made at a recent meeting of the Radiographical Society in New Orleans: "If you cannot get a report on a biopsy at once and contemplate surgery of a bone lesion, give roentgen-ray treatment at once as the lesion will often react quickly to roentgen-ray treatment and the patient saved from operation."

I wish to report three cases, two of which are small round cell sarcoma and the other small spindle cell sarcoma.

Case 1. Female, aged 7 years, reported for treatment February 8, 1927. Her chief complaint was a gradually increasing swelling of the lower third of the left leg. Past medical history: No history of any serious illness. Family history: Father and mother living and well. No history of malignancy, lues or tuberculosis in family. Present illness: About eight months ago she hurt the outer side of the left ankle by striking the lower third of fibula while playing. There was some bruising of the soft tissues but not enough to stop the child from walking. Not long after the injury there was a noticeable increase in swelling of the soft tissues but little or no pain. She had had a roentgen-ray examination recently, and amputation had been advised by a prominent orthopedist which was refused. Examination: Fairly well nourished child. General examination negative. There was a rather rounded outward expansion of the lower third of the left leg with marked infiltration of the soft tissues. The enlargement is very hard but only slightly tender on pressure. Patient walked with very little pain or limp. Wasserman negative. Roentgen-ray examination showed a marked destruction of the lower third of the left fibula beginning immediately above the epiphysis and extending upward for a distance of 3 or more inches. There is no expansion of the cortex but a general destruction of the bone which was almost totally destroyed in the center of the lesion. The surrounding soft tissues were very heavily infiltrated. Biopsy showed a small cell sarcoma according to Sarcoma Registry report. Treatment: Four areas were treated: anterior—posterior and right and left lateral over the lesion. The following factors used: KV 200, TSD 50 cm, 5 MA, filter 1/2 mm. copper and 1 mm. aluminum and 15 minutes to each area. This treatment was given in two days, two areas for 15 minutes each for two days.

In less than one month the soft tissue swelling had almost completely disappeared and some bone regeneration was noticed. There was no pain. In two months marked bone repair was noticed and in six months complete regeneration of bone took place. Repeated roentgen-ray examinations of the chest have shown no evidence of metas-

tases and the child today is clinically well but her parents were advised to have periodic roentgen-ray examinations of the chest made and warned to expect metastases in the future. Should they materialize, I believe we can control them for a long time by roentgen-ray treatments.

Case 2. Male, aged 43 years. Farmer and cross-tie maker. Chief complaint: Pain and swelling of the left shoulder for five or six months. Present Illness: Onset gradual with pain in left supra-scapular region, made worse by exercise, helped but not entirely relieved by rest and hot applications, swelling noticed two months ago, pain, aching in character. Trauma: Thinks he bumped shoulder against the windshield of his car six months ago. Used to carry cross-ties on his shoulder but none for the past five years. The pain increased rapidly until two months ago it was very severe; since then has diminished considerably, the swelling has increased rapidly for the past four or five weeks. There has been no fever. He has lost fifteen pounds of weight during the last six months. He has had no treatment except hot applications and liniments. No previous physical examination. Family History: Father died at 73 years of age with stomach trouble. Mother is living and well, age 63 years. Three brothers and four sisters living and well. Previous History: No history or symptoms of venereal infection. Has always been healthy until present illness. Examination: April 9, 1926—Well developed and nourished. The use of the left shoulder is limited, otherwise nothing abnormal. Over the left side of chest, posteriorly, above the border of the ribs there is a pigmented mole with a considerable overgrowth of hair. Mole is wine colored about the periphery and black in the center. The periphery measures about three inches by three quarters of an inch; the raised black portion is about two and a quarter inches by one-half inch. Patient states that this has not increased in size, and that there is no irritation. Has existed since birth. There is no thickening of the tissue beneath and infiltration about the mole. Local Condition: Limited to the left shoulder. There is a rounded tumefaction about three inches in diameter overlying the region of the point of the shoulder and behind the acromion. On palpation there is a rounded firm, but not hard, mass of tissue, smooth in coutour and outline lying just beneath the skin and not adherent to it, but firmly attached to the bony frame work of the scapula. The deltoid muscle, which should overlie it, seems to merge into it, and its borders toward the midline are even more poorly defined. There is no marked atrophy; the joint movements are free in every direction, except in abduction which is moderately limited. Patient states that he experiences some feeling of numbness and tingling in left forearm and hand, somewhat more marked on the ulna side. Wasserman was negative. Blood: Erythrocytes, 4, 110,000, leukocytes, 10,250. Urine: Negative No Bence Jones reaction. Roentgen-ray Examination: Roentgen-ray examination shows almost complete destruction of acromion process there being only a very small portion of the outer border still present. Biopsy: Section obtained by Dr. Guy A. Caldwell, forwarded to Bone Sarcoma Registry. Diagnosis: Small spindle cell sarcoma of left scapula, springing from the acrominon process. Treatment and Progress of Cases: On May 3 and 4, 1926, deep roentgen-ray therapy was given over the left shoulder and scapula. Three areas were used—antero-posterior, posterior-anterior and lateral. The following factors were used: 200 KV, 6 MA, TSD 50 cm, filter ½ mm Cu, 1 mm al, aperture-open. A total of fity minutes A.P., forty minutes P. A. and twenty minutes in lateral positions respectively. Patient suffered some nausea following treatment. In four weeks the mass on left shoulder had disappeared, pain has ceased and no limitation in motion persisted. In two months time, the acromion process showed almost complete regeneration but was somewhat roughened in outline. The last roentgen-ray examination made more than six months ago showed complete regeneration of the acromion process.

The man is clinically well now and refuses to leave his farm long enough to present himself for re-examination. His family physician says he has not lost a day from work due to disability since one-month after his roentgen-ray treatment. Numerous roentgen-ray examinations of chest show no signs of metastasis, nor is there other evidence of metastases.

Case 3. Reported through the courtesy of the Neathery Clinic, Sherman, Texas. G. E. Henschen, Roentgenologist. Female, aged 45 years, applied for treatment August 12, 1926. Chief Complaint: Pain and loss of voluntary motion of the right lower extremity of seven months duration. Present Illness: Fourteen months ago she fell from a gallery striking her right hip. She was confined to bed for one day when the pain stopped and she was able to walk. Two months later her right hip began to pain her, at which time her condition was diagnosed as rheumatism; her teeth were removed, she was given anti-rheumatic remedies, massage, baths and sent to Hot Springs. Seven months ago she became bed-ridden and has lost voluntary motion of the right lower extremity during this time. Past History; family history, etc., seem to have no bearing other than as reported above. Roentgen-ray examination made August 12, 1926 shows marked destruction of the lower half of the body of the right ilium extending through the acetabalum into the

right hip joint. One deep roentgen-ray treatment was given at this time over pelvis, centering target over body of right ilium; the following factors being used:: 200 KV, 3 MA, TSD 24", T 160', filt ½ mm cu and 1 mm al, which on the machine used, gives about 9/10 of an erythema dose.

Pain left within six hours so that patient slept without a narcotic. September 28, 1926, the patient was able to walk with a crutch. Roentgen-ray examination made at this time shows marked new bone formation. On above named date another Roentgen-ray treatment was given using same factors as in previous treatment, except that one mm of copper was used, and four hours treatment given.

Films made November 19, 1926, November 6, 1927, and January 20, 1928 show some rarefaction in body of right ilium, a well formed acetabulum and good preservation of the reproduced bone.

November 6, 1926, patient complained of cough at which time a treatment of chest was advised but not given until December 28, 1926. Formula: 170 KV, 5 MA, TSD 20", filter ¼ mm cu and 1 mm al, T 40', one area over entire chest, about 9/10 skin reddening dose. Films made of chest November 19, 1926 showed numerous metastases to chest, which were more extensive on films made December 26, 1926. Lateral views of chest at this time show a very large tumor of the sternum.

Roentgen-ray examinations made February 2, 1927 and January 20, 1928 showed almost complete disappearance of the lung metastases at the time of the former with possibly some recurrence upon latter examination. A small gland removed from the left supraclavicular space proved to be small round cell sarcoma. The site of gland removal healed by first intention after one Roentgen-ray treatment. On February 10, 1928, the Roentgenologist was again called in consultation at which time a large mass about the size of a large grapefruit was found in the right lower quadrant. Patient was very much emaciated, vomited all of her food and was about to die. A similar roentgen-ray treatment to the one given December 28, 1926 was given at this time. This was followed by increasing vomiting for one week. Murphy drip was given. In two week the tumor had disappeared and patient was able to digest roast pork and cabbage and was able to visit her neighbors.

March 5, 1928 the patient's chest was covered with nodules, the size of tip of the little finger, from posterior axillary line on left to same line on the right. Eight areas were laid out and through each 9/10 of an erythema dose was given through 1 mm. aluminum. In two weeks all of the nodules were gone.

A report from her on April 2, 1928 states that she is again bed ridden, her face abdomen and legs are swelling and she has to void about every half hour. The urine contains a slight amount of albumen but bladder contains no residual urine.

CONCLUSION

1. Roentgen-ray therapy is of proven value in the treatment of malignant bone lesions.

2. Malignant bone lesions should be given roentgen-ray treatment, regardless of whatever other form of treatment is contemplated.

3. We should report our cases not only to Radiological Societies but to general meetings of this type as very little appears in the general medical journals on this subject.

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DISCUSSION.

Dr. Guy A. Caldwell (Shreveport): The speaker had the opportunity of seeing with Dr. Rutledge the second case shown—that of sarcoma of the acromium process of the scapula. It was most gratifying to see the tumor melt away after treatment and to observe the rapid improvement in the acronium process. The improvement in the patient's general condition and in his use of the shoulder joint were equally remarkable.

Formerly there was a tendency to regard all tumors of the bone, with the exception of exotosis, as being potentially malignant. As a natural consequence early and high amputations were resorted to in all such cases. Many limbs with benign tumors were thus needlessly sacrificed, while those with malignant tumors resulted in metastases and death in spite of radical surgical procedures. This gave rise to a general lack of confidence in the surgical treatment of bone tumors, and the profession turned to the field of roentgen-ray therapy for help. The use of roentgen-rays and radium were found to be curative in a few bone tumors, helpful in others, and ineffective in still others.

It became apparent, therefore, that every means should be used to differentiate the various types of bone tumors, and then to determine what treatment would be beneficial to each. Increased knowledge of the subject obtained from roentgen-ray studies, surgical reports, follow-up records, and pathological research has improved the situation. It is now possible to recognize a large group of bone tumors as definitely benign from their histories, examinations, and roentgenograms. Conservative surgical removal is indicated in such cases and when properly done, yields excellent results. Amputation is an unnecessary catastrophy. Roentgen-ray therapy is in most of these cases ineffectual.

There is a small borderline group of bone tumors falling between the benign and malignant types. In these cases local surgical removal may suffice but amputation is often necessary. Roentgen-ray treatments are of little use.

A large group of these tumors is malignant—that is, they are progressively destructive, invade the soft tissues, metastasize and result in death. For the greater part these may be recognized from the history, examination, and roentgenograms. Conservative surgical measures, such as local excisions, are contraindicated in this group of cases. Radical procedures such as amputations, are mutilating and give no better result than can be obtained with roentgen-ray and radium therapy. There can, therefore, be no argument for surgical intervention of any kind in this last group of frankly malignant tumors. It should be realized that the most radical amputation will not save the patient's life and it probably will not even prolong his days. Roentgen-ray and radium therapy properly administered, will, on the other hand, certainly prolong the patient's life and make him more comfortable and it is far simpler and more desirable from his point of view than amputation.

In the late stages, when there are sarcomatous metastases in the pelvis, spine, skull, and lungs, and the pain becomes so agonizing that even large doses of morphia are ineffective, roentgen-ray treatments are a vertitable godsend in relieving the suffering patient. Although the treatments are not curative so much relief is given by them that they should never be withheld.

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If, however, it be found malignant, roentgen-ray and radium treatment will suffice to prolong the patient's life and make him more comfortable and are preferred to amputation which could do no more.

Dr. H. W. Meyerding (Rochester, Minn.): I regret not having heard both of these interesting papers. However, I gather that there is an optimism here which is very encouraging in view of the hopeless outlook which has been held regarding malignant bone disease in the past, due, no doubt, to more careful pathological knowledge and the more careful differentiation of bone tumors.

It is of first importance to determine the benignancy and malignancy of the tumor in order that we may accurately judge the benefits of various forms of therapy. We have gone further, following the diagnosis of malignancy, by again differentiating into four groups the degree of malignancy. It is interesting to note that in groups one and two of low degree of malignancy a high percentage of cures may be effected (as in epithelioma), while in groups three and four surgery and other forms of treatment are often of little avail.

Radiotherapy in the treatment of bone tumor is, in my opinion, still in an experimental stage. Careful study of the various groups of malignant bone tumors by pathologists, roentgenologists and

surgeons, extending over a period of years, will be necessary before a definite value may be placed upon radiotherapy. Such studies are being carried on in various parts of the country under the guidance of the Sarcoma Committee of the College of Surgeons which extends full co-operation to the profession. As a result the profession will greatly benefit because of this scientific research in which accurate knowledge as to diagnosis and results of various types of treatment will have been arrived at.

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When we have kept careful records of the facts thus obtained together with the record of treatment and results we will be able to reclassify our knowledge of various types of malignancy involving bone and give proper value to the various methods of treatment.

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years, and in my limited experience I have never seen a case of lympho-sarcoma that I have considered clinically well. Probably others have, but that is just exactly what our experience has been along these lines.

Radium implantation, of course, has its place in the well selected case, but we have practically given up deep therapy in our treatment at the present time for the reasons I have explained to you in passing just a while ago. What the future will bring us, as far as radiation is concerned, in these types of tumors, time is the only thing that will really be the final judge.

Dr. J. L. Danna (New Orleans): After witnessing this wonderful presentation of cases I hate not to say something, and as my name was used, naturally I am going to rise.

This is a subject for deep and serious thought. I am happy therefore to have Drs. Rutledge and Fortier come here and give us something concrete about a particular class of cases in which they have had such excellent results with radiotherapy. I think Dr. Samuel was the first to use radium and also the first to use deep therapy in New Orleans. As he has just stated, we have only been using radium for about ten years and deep therapy for five years, so the field is still a broad one and there is a great deal of unclassified work which we have not worked out yet. Therefore I congratulate Drs. Fortier and Rutledge on their wonderful results and am glad to have heard these papers.

Dr. C. P. Rutledge (closing): I thank the doctors for their discussion.

In quite a few of these bone tumors metastasis can be controlled by roentgen-ray therapy for a certain length of time and it may be that at some not far distant period we will be able to control them permanently. I hope so. In one of the cases I reported it was nothing less than marvelous how the metastases would disappear under roentgen-ray treatment.

Dr. Bloodgood, discussing this subject before the Radiological Society last December, was comparing the effects of roentgen-ray therapy and sugery in bone tumors of the upper third of the femur and during this comparison he told of an experience he had in tracing thirteen cases of this type reported as cured following amputation. Being curious to find out further details and how they were progressing, he traced them to their source and discovered that one case had been reported by thirteen different men. When the involvement is in the upper portion of the femur, he stated that he would never do an amputation, but employ roentgen-ray therapy. He also made the statement that all bone tumors, while waiting for biopsy reports, should be radiated. That may be rather radical, but I do not know. Certainly, if we radiate carefully, we can do no appreciable harm.

Dr. Samuels says if you give deep therapy there will probably be a recurrence in five years. In some instances this will happen, but often in three months, if not treated, they will be dead. In some cases superficial roentgen-ray therapy will take the place of deep therapy.

Dr. Lucien Fortier (closing): I have very little to add, but would like to thank the various ones who were kind enough to discuss our paper.

I think Dr. Samuel's pessimism is due to the fact that he followed the German technique. They used extreme doses, especially at the start, and that possibly accounts for the bad effects they had. We are using smaller doses and spreading the treatment over a longer time, and if we are getting any harmful results, they are few and far between.

RADIATION IN SARCOMATA.*

LUCIEN FORTIER, M. D.,

AND

T. T. GATELY, M. D.,

NEW ORLEANS.

It is an established fact that some types of new growths are more amenable to roentgen-rays and radium than others. The simple epithelioma of the skin, for instance, can practically always be cured by radiation if seen before there are metastases to the glands. At the other end of the scale are the carcinomas of the oesophagus, stomach and liver, which are almost never cured by radiation or any means.

In between there is a class for which radiation promises much hope for hitherto incurable conditions, some of the sarcomata. This is not new to you, of course, but we simply wish to emphasize it by presenting a few cases in which we have had more or less excellent results. Some have been treated by radiation alone and in some others radiation has been a valuable adjunct to surgery.

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

In the group that received their benefit from radiation alone there are seven sarcomata of lymphoid origin, two fibro-sarcomata, and three unclassified sarcomata one each of the lungs, tonsil and cervical vertebrae. Of the lymphoid group four have had microscopic sections made.

Case 1. Mr. D., referred by Dr. Mouledous, was seen in August, 1923. He had a generalized enlargement of the lymph nodes on either side of the neck, both axillae and inguinal regions and several large masses in the abdomen. One of the glands was removed and reported a lympho-sarcoma by Dr. Couret. He was given a quite extensive deep roentgen-ray bath over all areas involved. The abdominal masses and other enlarged glands rapidly disappeared and the patient returned to work feeling excellently except for a dry throat due to the action of the rays on the salivary glands and an edema of the penis due to lymphatic blockage. He remained well for over two years when there was a recurrence in both epitrochlear regions and in the right axilla. The recurrences were kept under control for another year when the patient finally succumbed after at least three years of comfortable life.

Case 2. Baby C., seen in May, 1923, a patient of Dr. Jones, had a gland removed from the neck at Charity Hospital, which on section was a lympho-sarcoma. A surface pack of radium was applied over the neck. The condition showed rapid improvement and finally cleared up entirely. She is alive and well today, five years later.

Case 3. A case of Dr. Jerome Landry, seen in August, 1924. She had multiple large tumors of lymphoid origin in the abdomen. Laparotomy and microscopic section had previously been done in Meridian. She was practically moribund and was given deep roentgen-ray reluctantly. There was prompt improvement and complete relief eventually. The patient is alive, well and happy today, nearly four years later.

Case 4. Mr. B., a patient of Dr. Louis Levy, operated in August, 1923, when a section was removed from a large abdominal mass. The pathologist reported an undoubted malignancy, probably a carcinoma. The exact character of the tissue could not be determined owing to the amount of necrosis. He was given deep roentgen-ray treatments and responded rapidly. From his reaction we feel the tumor must have been a sarcoma rather than a carcinoma. He is alive and in excellent health today, almost five years later.

The three on which a clinical diagnosis is of sarcoma of lymphoid origin alone was made were 1st. a Mr. M., referred by Drs. Gillaspie & Souchon, with a large mass in the femoral region. In July, 1921 radium needles were scattered through the mass and he was given roentgen-rays treatment over the femoral and inguinal regions. The mass disappeared entirely. He returned a year later with a similar mass in the occipital region which disappeared after deep roentgen-rays therapy. He is alive and well today nearly 7 years after the original condition and 6 years after the recurrence.

Case 2. Mr. M. a patient of Dr. Nelson, had a large ulcerated tumor in the neck and a smaller mass on the right hand. He was given deep roentgen-ray treatment over both tumors. The tumors in the neck responded rapidly and cleared up entirely. The hand however was uneffected. He lived in comfort for over a year when extension of the lesion in the hand, for which he refused further treatment, resulted in his death. It is hard to explain the failure to effect the lesion on the hand excepting that we do know that the same type of tumor will often respond differently in different regions of the body. Or it may be that the tumor in the neck and that in the hand were two distinct types.

The third is a Mr. B. with a large mass in the left cervical region. He was given a series of deep roentgen-rays treatment in February, 1924, with a rapid disappearance of the tumor. As far as we can ascertain he is alive and well today.

Of the two fibro-sarcomata, one was a fibro sarcoma of the posterior naso-pharynx seen with Dr. Dupuy in March, 1922. A section from it was reported as such by Dr. Couret. Radium needles were inserted, the mass disappeared and the boy is alive and well today, 6 years later. The other young man referred in August, 1923 by Dr. Fenner had a section removed at Charity Hospital and a report of fibro sarcoma returned. He was given two series of deep roentgen-rays treatment with complete clinical relief up to a year ago when we last saw him. We believe he is still alive and well.

Of the unclassified sarcomata the sarcoma of the lungs was a metastatic affair from the right breast; removed one-year previously at Charity Hospital by Dr. Murphy. She had numerous masses in both lungs which cleared up rapidly and entirely under deep roentgen-rays therapy. She lived in perfect comfort for over a year with no signs of recurrence, when she died suddenly of a cardiac lesion.

The sarcoma of the tonsil was seen with Drs. Nelson and Dupuy in 1923. Radium needles were implanted in the growth and later deep roentgen-rays therapy applied to both sides of the neck with

a complete disappearance of the lesion. She is alive and well today.

The sarcoma of the cervical vertebrea showed on roentgen-ray examination extensive destruction of the second and third vertebrae. This patient referred by Dr. Simon in January 1926, was also radiographed by Dr. Granger, in whose diagnosis we concurred. At the time treatment was instituted she was bedridden and showed almost complete paralysis of both arms and hands.

She was given three series of deep roentgen-ray treatments and today shows complete bony repair of both vertebrae, is entirely free of symptoms and lives a normal and happy life. This was a most gratifying case to all concerned.

All of these foregoing had no treatment but radiation and all showed marked relief and in some we obtained a clinical arrest at least.

There are four other cases we would like to mention in which an excellent result was had by radiation, plus the cautery, surgery, and Colles toxins. These four were all referred by Dr. Danna. Two were sarcomata involving the antrum of Highmore both seen over five years ago. They were vigorously treated with radiation, cautery and Colles toxins. After a rather stormy course both are alive and apparently well today at least four years after the disappearance of their original lesions.

The third was a sarcoma of femur in a 3-year-old child treated with radiation and Colles toxins seen first in 1923. She too had a stormy course but is today alive and well.

The last is a fibro sarcoma of the thigh treated by surgery and radiation in 1921. She is alive and well and has since married and had a child.

We wish to repeat that there is nothing new or extraordinary in this paper. These things are being obtained by radiation every day in all parts of the country. We simply felt that some good would come of emphasizing an already well known fact namely that great good can be done by radiation in almost every case of sarcoma. There will be disappointments of course. We have had many of them. But the great relief that is given to practically all and the occasional almost miraculous cures that are encountered more than outweigh the disappointments.

DIPHTHERIA*

R. T. LUCAS, M. D.,

SHREVEPORT, LA.

The more you see and know of diphtheria, the more respect it commands. It is such an important disease that we need occasionally to refresh our minds on its main points and keep informed on the latest developments in prophylaxis and treatment. I shall leave out much text-book description in order that I may have time to emphasize those phases of the disease which appear most important and desirable to present before this audience. Part of my discussion will be a review for some of you, but I hope to bring out certain facts that will be of interest to all.

The first clear description we have of diphtheria is by Aretaeus in the First Century, A. D. In 1883 Kleb discovered the diphtheria bacillus and shortly thereafter Loeffler isolated it and infected susceptible animals. The characteristic morphology is best found in young cultures; that is, twelve to eighteen hour growths. Loeffler's methylene blue is the best stain for ordinary use. The bacillus grows best at body temperature. Boiling kills it almost instantly. Protected by a film of mucus as is usually the case, it may live for a long time. The bacillus is not sensitive to cold. The virulence of diphtheria bacilli is highly variable, and the virulence cannot be determined by the severity of an isolated case. The presence of antitoxin in the blood and the possible association of other bacteria have important bearing in determining the severity of the disease in any given patient.

CARRIERS.

Healthy individuals, who may or may not have had diphtheria, may become carriers of virulent diphtheria bacilli without contracting the disease. Many so-called diphtheria carriers are carriers of non-toxic diphtheroid bacilli. Diphtheria bacilli are found in

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the throat three days after the disappearance of the membrane in about fifty per cent of the cases. In about ten per cent of the cases they persist for about two weeks. It is difficult to determine the absence of the bacilli in the throat on account of their possible presence in the tonsillar crypts. In persistent carriers tonsillectomy is the most efficient treatment. An individual with a sore throat giving a positive diphtheria culture may or may not have diphtheria. Naturally, non-diphtheritic infection may take place in the throat of carriers. On the other hand, an individual may have diphtheria and negative cultures be obtained. The usual source of infection is the secretions from the nose and throat of diphtheria patients, convalescents, or healthy carriers. Cats are possible carriers of true diphtheria, although in very rare instances other animals may be a source of infection.

SUSCEPTIBILITY.

There is an individual susceptibility to diphtheria. Those of the same family tend to have a similar susceptibility. It is well known that age is an important factor. The breast-fed infant rarely is susceptible within the first six months of life on account of immunity received from its mother's milk.

SYMPTOMS.

The usual incubation period is one to four days. The onset is usually slow and insidious with malaise and loss of appetite, chilly sensations, slight fever, and headache, and at times complaint of sore throat. I had one patient in which the first symptom noted was a convulsion.

PROGNOSIS.

The prognosis depends upon the duration of the illness, the type of the disease, the age of the patient, and the presence or absence of complications, especially paralysis and pneumonia. As a rule the laryngeal cases have a poorer outlook. Those cases having an increasingly rapid pulse rate, those having a sudden drop to about forty or less in the pulse rate, and those showing cyanosis without laryngeal obstruction or after intubation or tracheotomy, have a very unfavorable prognosis.

COMPLICATIONS.

Those patients receiving antitoxin late in the disease and those receiving insufficient antitoxin are prone to develop some form of paralysis, the most common of which is paralysis of the soft palate, evidenced by a nasal voice and the possible regurgitation of fluids through the nose. Paralysis of the ciliary muscle of the eye with loss of accommodation, and loss of the knee reflex is fairly common. Paralysis of the diaphragm and heart failure are the most dreaded dangers following diphtheria and are, in the great majority of cases, fatal. Heart failure may occur fairly early and is evidenced by nausea and vomiting. The patient becomes cyanotic, the pulse weak, and the pulse rate may drop to as low as thirty a minute. Numerous other forms of paralysis may occur. One case under my observation became helpless, had to be fed by gavage, had no control over his sphincters, and yet made a complete recovery. The heart and diaphragm are usually involved long before the paralysis becomes so extensive as in this patient. Paralysis may manifest itself as early as the second week, but it may be several weeks before it develops. In post-diphtheritic paralysis not involving the vital functions, the prognosis is good with sufficient rest. Pneumonia more commonly complicates the laryngeal type. Those children under two or three years do not have as good outlook as those older.

DIAGNOSIS.

The pharyngeal type of diphtheria is the most common. Laryngeal is the next most common type. Frequently valuable time is lost and giving of antitoxin is delayed because there is no visible evidence of diphtheria in the throat. In the laryngeal type throat cultures are often negative, but cultures taken directly with a tracheoscope are usually positive. Less frequent types are nasal, ear, and diphtheria of the mucous membrane of the vagina, and of wounds.

The clinical diagnosis as a rule is more reliable than the laboratory diagnosis. The latter should be considered confirmatory and should always be made when possible. Positive diagnosis can be made in some cases from examination of a direct smear, but examination of a young culture is necessary when the direct smear is negative. The typical diphtheria lesion somewhat resembles wet, raw leather and is made up of necrotic epithelium with coagulated exudate from the blood vessels and bacteria. The membrane cannot be detached without causing bleeding. A nose, eye, or ear infection with coincident urticaria is likely to be diphtheria.

In follicular tonsillitis the fever is usually higher, the throat more painful, and the constitutional symptoms appear earlier. The exudate on the tonsils is usually in spots at the opening of the crypts, and is easily removable.

In Vincent's angina there is usually a punched-out appearance of the lesion. Examination of a smear shows the typical bacilli and spirilla of Vincent's angina. Antitoxin has no effect on it.

In differentiating between diphtheritic laryngitis and catarrhal laryngitis note that diphtheritic laryngitis has a more gradual onset and is usually first noticed during the daytime, while catarrhal laryngitis usually comes on suddenly, in the middle of the night, with great severity, and is usually much better the following morning. A history of exposure to diphtheria or previous similar attacks helps in the differentiation. When there is any reasonable doubt as to the diagnosis, antitoxin should be given. A thin, irritating nasal discharge, often blood-stained, that causes excoriation and possible swelling of the upper lip should make one suspicious of diphtheria. The other forms of diphtheria are rare. It is characteristic that the pulse rate in diphtheria is rapid in comparison to the temperature which is characteristically not high. The typical diphtheria odor can at times be recognized in the first day or two.

PROPHYLAXIS.

The laity as well as the profession is coming to realize the importance of diphtheria prophylaxis. The very extensive use of toxin-antitoxin immunization in New York City has proved its worth beyond any doubt. It has cut the incidence of diphtheria to less than half. The same reduction in incidence is taking place in other cities and wherever active immunization is extensively employed. The age group for diphtheria is one to ten years. It is relatively infrequent after this age, and in the first year of life the incidence is less than one per cent. On the whole infants in the first six months possess some immunity. The administration of toxin-antitoxin to this age-group has been rather disappointing. Non-immune infants from six month to one year of age are immunized as readily as older children. It is a fact worthy of note that the percentage of immunes is very different for different localities, the percentage being appreciably lower in the cities than in the country. For instance, at one year the percentage for the cities is sixty-five and ninety for the country. For ten years of age and over the percentages are five per cent in the cities and sixty per cent in the country. These figures are from Park. Elsewhere than in the United States Ramon's antitoxin or diphtheria toxoid is used, and the results obtained are comparable to those obtained with toxin-antitoxin mixture used in the United States.

Susceptibility to diphtheria, as we all know, is determined by the use of the Schick test, which consists of the injection of a small amount of toxin into the skin. Those susceptible show a reaction about the site of the injection in twenty-four to forty-eight hours which lasts for three to five days.

Toxin-antitoxin mixture is best administered in three doses given about a week apart. In three months time this gives immunity in abouty ninety per cent of the cases. A second series of injections will

give a satisfactory response in about eight of the ten remaining per cent. Six months after the injections the percentage of immunes is greater than at three months. It is an interesting fact that those having some natural antitoxin in the blood respond to toxin-antitoxin more rapidly than those having no antitoxin. Toxin-antitoxin mixture does not give immediate immunity and therefore, in the presence of diphtheria, antitoxin and not toxin-antitoxin should be used. The presence of an excess of antitoxin in the blood requires larger doses of toxin-antitoxin to produce a satisfactory response, and if antitoxin has been administered, ten days to two weeks should elapse before giving toxin-antitoxin mixture.

The Schick test should be used to determine the immunity in older children, those having had toxin-antitoxin mixture, and those individuals likely to come in contact with diphtheria, before immunity should be assumed. It may be omitted to those under five years because the percentage of susceptibles is so high.

Park's modification of the Schick test is especially applicable in this group. This test consists of the injection just beneath the skin of one c.c. of the toxin-antitoxin mixture. Non-immunes will give a positive test as evidenced by an appreciable pink skin reaction about the site of the injection. The first dose in immunization has been given in any case, and in the absence of a reaction the immunity is established and no further injection need be given.

The duration of immunity is permanent in most cases, although it is reported that about three per cent of cases annually change from a negative Schick reaction to a positive reaction. Some people will give a positive Schick reaction and later give a negative reaction. The possibilities of poor technique, inactive material, and incorrect readings of reactions probably account for at least most of these changes. A natural immunity is permanent in nearly all cases. If an individual has had diphtheria and gets a sufficient neutralizing dose of antitoxin early in the disease, before he has had time to produce his own antitoxin, he is not as likely to develop lasting immunity as the individual who did not receive antitoxin early in the disease and had to develop his own antitoxin.

The giving of toxin-antitoxin mixture raises the question of sensitization to horse serum. An increasing percentage of cases of hyper-sensitiveness to horse serum may be expected in the future from the extensive use of toxin-antitoxin mixture. I have had a few fairly severe reactions of this kind, but have not seen any really serious ones. To obviate this possible sensitization to horse serum, it has been my practice lately to use the toxin-antitoxin now on the market, made from goat serum.

TREATMENT.

Antitoxin may be administered intravenously, intraperitoneally, intramuscularly, and subcutaneously. The rate of absorption is greatest in the order named. In laryngeal, severe, and septic cases, and in those patients not receiving antitoxin in the first two days of the disease antitoxin should be given intravenously or intraperitoneally. Park estimates that one unit of antitoxin given intravenously is at least the equivalent of five units given subcutaneously or intramuscularly. The dose of antitoxin advised is three thousand to thirty thousand units or more. In any case, a sufficiently large dose should be given, and the dose need not be repeated. Of course the slower the rate of absorption and the severer the case, the larger the dose required. With a history of previous serum injections or possible sensitiveness to horse serum the patient should be tested with a minute dose subcutaneously before giving the full dose of antitoxin. Antiphalaxis is readily produced in the laboratory animal, but a serious reaction in the human is rare. Maximum concentration in the circulation at the earliest moment is necessary to give the patient

the greatest benefit. For this reason the intravenous route is the method of choice, using the jugular vein when necessary. Intraperitoneally is the next best. Prolonged rest is necessary to minimize the chances of paralysis, which usually occurs within ten days to two weeks.

In laryngeal diphtheria with stenosis of the trachea there are two alternatives. They are to do an intubation or a tracheotomy. Where possible intubation is the one of choice. It requires very careful nursing for the three to five days the tube is left in place, but it is not mutilating, and is efficient in nearly all cases that tracheotomy is efficient. The advantages of tracheotomy are that a larger percentage of physicians can perform it and the nursing care is simpler. Another alternative where the apparatus is available, time will permit, and the technique mastered, is to pass a rubber tube into the trachea and by suction remove the excess of mucous and loose membrane. Intubation or tracheotomy should be avoided where possible. However, one of these should be used on the early evidence that the patient is not getting enough air and is exhausting himself. In a fairly good series of cases I have been able to give proper relief in about ninety per cent of the cases by intubation. In most of the failures to give relief by intubation, tracheotomy likewise failed to give relief. In an occasional case the patient immediately coughs up the tube with mucous and membrane and does not require re-intubation.

SUMMARY.

Many healthy individuals are carriers of virulent diphtheria bacilli. Many carriers are carriers of non-virulent diphtheria bacilli. A positive throat culture is not conclusive evidence of diphtheria. A negative throat culture is not conclusive evidence of the absence of diphtheria. The infection of a mucous membrane with coincident urticaria is likely to be diphtheria. The extensive use of toxin-antitoxin mixture in immunization has greatly reduced the incidence of diphtheria. Increasing numbers of individuals sensitive to horse serum may be expected in the future. Park's modification of the Schick Test simplifies the testing and immunization for diphtheria. The method of choice for the administration of antitoxin is intravenously or intraperitoneally on account of its rapid absorption.

DISCUSSION.

Dr. L. I. Tyler (Baton Rouge): Mr. Chairman and members of the Association: First, I want to congratulate Dr. Lucas on his excellent paper. He has left out very little that any of the rest of us could add to. I do not mean to try to cover this entire subject, I merely mean to try to stress three points: First, the early diagnosis; second, the administration of the antitoxin; third, the after-care of the patient. No examination of a child is complete without first observing the respiration and a careful look at the throat. Most of us, I believe, are sufficiently familiar with the diphtheria membrane to recognize it when we see it. However, there is no object, if the condition of the patient is such and we are in doubt, to wait on the laboratory findings. Once a diagnosis is made, then it is very important that we give a sufficient amount of antitoxin. My rule is, if I am in doubt as to whether I should give ten or twenty thousand units, I always give twenty. I never like to see a patient require a second dose; too much time is lost, too much damage is done.

So, after a sufficient dosage of antitoxin is administered, as Dr. Lucas said, preferably intravenously, second intraperitoneal, the patient should be considered seriously ill and put to bed, on a light diet, with a daily examination of the heart and kidneys, for two reasons: The first thing, a daily examination enables us to detect any condition, any complication which may arise, in its infancy; second, it impresses the family or the parents, particularly, with the importance of keeping the child quiet. In that way, I believe we will reduce the damage done by so many of them when the little fellows are permitted to jump up in bed, chase over the room and so forth. I thank you.

Dr. Bloom (New Orleans): I have enjoyed very much the paper written by Dr. Lucas, and I have little to add to what he has said, except there are a few points that I would like to stress. We have had a great deal of difficulty in overcoming the so-called carrier. In a series recently made by two well-known pediatricians, they found, in a series of two hundred and seventy-two chil-

dren, approximately six per cent of that number were carriers; and of that six per cent, possibly only four percent were nasal carriers. I would like to ask Dr. Lucas what his routine is in the management of carriers. The next point I would like to discuss is the question of susceptibility. Dr. Lucas has said that he has found familial susceptibility. I have not found that true.

In a series of three hundred and fifty cases in my private practice, I have had less than one percent where there has been more than one case in a family. To summarize some of the more important symptoms and signs of nasal diphtheria, I have found that scabs of the ala nasal which were not amenable to simple treatment, offensive breath that could not be accounted for, and mouth breathers where we were fairly certain that the adenoids were not the mechanical factor; these were sufficient symptoms to justify the suspicion of diphtheria.

In the diagnosis of tonsillar diphtheria, we are mislead at times. Certain cases present typical signs of so-called follicular tonsilitis, but if this type does not clear up with an application of silver nitrate, associated with a hoarseness and a mild or slight tirrage this case will unquestionably prove to be diphtheria—laryngeal diphtheria.

We are confronted with the problem of giving toxin anti-toxin to a great number of our patients, and because a great many of them are prejudiced against antitoxins and toxin-antitoxins, I think if we can bring to their attention the fact that Park and Zingher of New York, have treated or vaccinated over one million children with toxin-antitoxin with apparently no deaths that surely this has gone beyond the experimental stage. Unfortunately, there have been three instances where deaths have been recorded; one in Dallas, Texas, another in Boston, Massachusetts, and a third in Vienna.

The Dallas instance was caused by the toxin-antitoxin not being neutralized. In Boston, the toxin-antitoxin was frozen, and in Vienna the toxin-antitoxin was toxic when delivered. If we consider the question of anaphylaxis and make a comparison of the globulin of the toxin-antitoxin, as compared to the antitoxin, we will find that with the toxin-antitoxin is one three thousandths of the c.c. as compared with one c.c. of the antitoxin.

Another question will frequently be asked by parents, when other children have been in contact with the case of diphtheria, "Would you give, at this time, the toxin-antitoxin, or the antitoxin, as a prophylactic?" It is not advised that toxin-antitoxin should be given where a child has come in contact with a case. I never give an antitoxin to a child who has been in close proximity to a case unless cultures have been made and proven positive, for, in these cases they bear close watching and if the time arises when the diagnosis is certain, you have plenty of time to give the antitoxin.

Dr. Geo. S. Bel (New Orleans): Mr. Chairman and members of the Society: Dr. Lucas' paper is undoubtedly one of the most important and interesting that has been presented at this meeting. There can be no doubt but that in a number of cases a careful evaluation of the clinical symptoms, subjective and objective signs will lead the experienced physician to most probably make a correct diagnosis of diphtheria in the great majority of cases; however, I want to impress upon each and every one of you, the necessity of controlling by cultural methods, all cases of suspicious throat, nasal and laryngeal infections.

We must remember that there are atypical forms of diphtheria and we can not, no matter how experienced, always determine the exact causative factor by the location and character of the membrane. I have observed many cases, seemingly frank and innocent tonsillitis, which, by cultural methods, proved to be diphtheria; but, on the other hand, many a true membrane on the tonsils and pharyngeal wall, have proven not to be diphtheritic after a careful bacteriological study.

Alert and wise physicians, even though placing the proper reliance upon laboratory examination, will promptly administer antitoxin in all suspicious cases without awaiting the final report of the pathologist.

Just a word concerning the taking of cultures. Very frequently, especially in children, we have considerable difficulty in securing the proper specimen. Sometimes our applicators do not even come near the diseased spot and, to our surprise, the laboratory report is negative. It has been my practice to always be certain that the membrane has been carefully brushed, even made to slightly bleed, and invariably, I secure swabs from the nose in all suspicious cases. After making my cultures I send the infected swabs to the laboratory, and in numerous cases of diphtheria, the pathologist has been able to give me a positive morphological diagnosis by the study of stained smears made from the swabs, this tentative diagnosis being laterly verified by the cultural study.

Many of the serious complications of diphtheria that we have heard mentioned this afternoon, especially paralyses and cardiac involvement, are largely due to delay in diagnosis and insufficient use of antitoxin. Remember that the prognosis

in this disease depends practically entirely upon the prompt administration of antitoxin in sufficently large doses.

Dr. W. H. Harris (New Orleans): As a laboratory worker, I was about to say pretty much the same thing as Dr. Bel has said. I wish to take certain exceptions to the matter of not relying upon the culture. I would say that in instances where a laryngeal infection is considered and a matter of delay may mean serious consequences to the patient, very well and good, do not stop to debate. On the other hand, in tonsillar or faucial diphtheria, if diphtheria infection is present the diphtheria bacillus will be found. That, of course, is contingent upon the procuring of the proper material. We know these patients are often screaming, writhing, little children, and if you are content to stick a swab in the mouth and not touch the proper pathologic site, we may obtain a negative report under the circumstances, where a positive should be obtained, but that is not the laboratory's fault. I have seen repeated examples of streptococci infection in which ear, nose and throat specialists of high standing have been satisfied that the clinical lesion was that of diphtheria. We have followed these cases up, where they have withheld the injection of serum. Recently tests have never shown the diphtheria bacillus present and the case has cleared up without serum therapy.

I do not think it is proper, in these ordinary tonsillar lesions which may be pseudodiphtheritic, to administer the serum promicuously, inasmuch as there may be future occasions when we will feel more comfortable in giving serum injections where the disease is actually present.

I would like, further, to say that I do believe we should encourage more the matter of direct bacteriological examination of the exudate. We have had occasions in our laboratory work to follow up a great deal of direct smear examination, and wherever it has been practical to obtain a satisfactory portion of the exudate, the smear will, as a rule, give you satisfactory diphtheria organisms. The culture is not always necessary, except where we are very much in doubt.

I do not believe that we have any pathological manifestations of the throat, which, clinically, is absolutely pathonomic of diphtheria, and we have diphtheria lesions that are not clinically representative of this disease.

I think the same thing occurs in the instance of the chancre, where we know we may be at a loss from both sides. Although usually the clinical aspect conforms with the laboratory side, there are exceptions which should be heeded.

Dr. N. F. Thiberge (New Orleans): There is one point I would like to bring out, and that is, in the interpretation of the test; the doctor made allusion to it, but I think it deserves our consideration for a few minutes longer. Those considerations have been brought to my mind very forcibly in my ten years in the hay fever clinic. There are three things we have to consider in making skin tests. First of all, is the immediate reaction, that immediate reaction may be simply traumatic, and it is to be disregarded. The second reaction is of non-specific protein. There, the control and the Schick test will give you the same reaction and disappear at the same time, and the only reliable finding that you are to accept is where time has had a chance to separate and to stress the specific reaction in the Schick test, not appearing in the control. You have to wait for your reaction.

If you have an immediate reaction, disregard it. We always wait a long time before we interpret hay fever tests, because there are some patients who will react to any kind of protein, and protein is contained in the Schick reaction. This you can disregard it; it is only after that reaction fades out and the other one comes on, that you find the real test.

Dr. Rufus Jackson (Baton Rouge): Gentlemen, I would first address myself to the general profession, particularly the residents in the rural districts, where you have not accessible examinations by specialists and there I would warn you of a pitfall. Do not treat incrustation about the nose as a simple condition.

Fit yourself to examine the inside of a nose, and by the time you have seen three or four cases of diphtheria, you will see enough inside the nose to diagnose nasal diphtheria before you get your crust formation about the nose.

Another thing, do not trust the croup. This thing seems to run in special forms and special districts. Since my residence in Baton Rouge in the past eight years, it has been almost an invariable rule that the history is very specific that the child is coupous at night and, in the day, is clear, and each day, from two to four, the croup becomes worse. Those people were particularly justified in considering those cases—I mean the laymen and a great many doctors—the same way, as croupous, because they had croup in the family before, which acted that way and cleared up without manifesting the marked symptoms of laryngeal diphtheria.

Of course, we have to get at the bottom of this and get the scientific facts, which are of interest in a very few years, because soon the toxin-antitoxin and the use of diphtheria anti-toxin is

rendering so inocuous the virus or strain of diphtheria bacilli that we will not have so much of the virulent diphtheria. The thing I have in mind is, however, when shall we intubate or when shall we tracheotomize the patient, when shall you employ it? Very often, you see people who insist that their child shall not be tracheotomized and not be intubated, and you insist, and the child persists in living, in spite of you, and you are thereby discredited.

We have no scientific check, because these children die, not of air hunger, but of hear paralysis—I should not use that term, they die of heart fag, most all of them die of myocarditis, because they do not go to the point of getting an endocarditis.

So, I believe many of you men should start an investigation in conjunction with your internists, who can take the blood pressure and study the heart and determine the minimum blood pressure that a patient should be allowed to reach, before you say it is now safe to go any further without intubating or tracheotomizing, because you can save a lot of children. Intubation may not be as helpful as you hoped, and you may be driven to tracheotomize too late, and I would say, in this connection, for the general practitioner, if you want to get good results from the antitoxin, don't inject it in the same hole, inject it in four points, you may hit a blood vessel and get a big clot and little absorption in your second point, and if you get everyone without a blood clot, you have four avenues. I learned that in some cases where it was not feasible to give an intravenous, and I turned it in four different points, and whatever dose you are in the habit of giving, if you give ten thousand, by all means give twenty; and if you are in the habit of giving twenty and you are putting it in for suspected laryngeal case, put in forty thousand.

Dr. J. H. Musser (New Orleans): The last two years, I have had the opportunity of seeing some six hundred cases of diphtheria, approximately. There are one or two brief observations I would like to make.

In the first place, the frequency of the different types of diphtheria: We find nasal diphtheria quite frequently in the ward. Thanks to the very assiduous study of the drums by Dr. Jones, we found many cases of aural diphtheria. At the present time, I believe there are eight cases in the ward at the Charity Hospital.

I want to accentuate something Dr. Jackson said and take issue with Dr. Harris about the advisability of making a bacteriological culture or making diagnosis from the bacteriologic examination, and that is with the laryngeal type of diphtheria. In this large series in Charity, we have had only one death from the pharyngeal type. On the contrary, we have a great many deaths from the laryngeal type. I would advise always, if you are called to a patient's house at night to see a child with croup, not to wait for the bacteriologic diagnosis, if that child has not had previous attacks of croup, but get the antitoxin into the child at once, because a great majority of such cases are truly laryngeal diphtheria, and that is the type of case we see die in the hospital, coming in in the late stages, and dying in perfectly frightful numbers.

I am a little dubious about the advice of giving antitoxin intravenously, I think it is an exceptional case that requires it. I would hesitate strongly and I would dislike very much to see the impression go out that the average internist and pediatrician advises that particular route of the administration of antitoxn, because there is no question, it is a dangerous procedure and one which sometimes, unfortunately, leads to extremely tragic results.

Dr. Guthrie (New Orleans): Mr. Chairman, there is one little point that I think we should make clear, before this assembly adjourns, and that is, if there is any time after infection of diphtheria remaining untreated, that there is a point at which a commission can determine that myocarditis has occurred. The notion of diphtheria is that myocarditis begins as soon as the toxins circulate in the blood; myocarditis is there whether we can demonstrate it or not.

It was said, this afternoon, we should wait regarding intubation and study to find a point where myocarditis had occurred, and then do something. That is not good teaching. We want to guard that myocarditis, because it is as sensitive to the treatment of toxin, and that is our chief guard. If the child gets well, the larynx is perfectly satisfactory; he may be a so-called convalescent, but from the internist's standpoint, that child may be enormously damaged, and the laryngologist, or whoever treated the child in the acute attack, may have made a gross failure, even though the child was saved. A child saved with a damaged myacardium, through delay in introducing the proper amount of antitoxin, the job is just as poor a one as if the child had died; he is as much to be blamed, he has done an inartistic piece of work. We have to guard that myocardium and keep the integrity of that myocardium in mind from the minute we see these cases.

Dr. L. R. DeBuys (New Orleans): There is no excuse for anybody to have diphtheria now with the present method we have for the immunization of individuals. Everybody should be immunized if not already immune. Those of us who allow diph-

theria to develop in our clientele have nobody to blame but ourselves. I know of no immunizing agent that causes so little reaction and inconvenience to the individual than the toxin-antitoxin employed in the immunization against diphtheria.

With regard to finding the Kleb Loeffler bacilli in the throat of an individual who is not ill and who has no clinical evidences of the disease in the upper respiratory tract, or systemic reaction, one or two explanations are to be considered, either the individual is taking care of the infection and is immunizing himself, or the individual has had the active disease and has not recovered sufficiently to free himself from the bacilli and is looked upon as a carrier. In connection with the former instance the studies of the immunity to diphtheria will hear that out. It has been shown that the higher the age scale the smaller the percentage of individuals who are susceptible to the disease. Those individuals who have never had the active disease and who give a negative Schick test have at some time or other overcome the diphtheria bacilli and immunized themselves. On the other hand, if the individual who has had the disease and who still has diphtheria bacilli present in his throat will give a negative Schick test he should be looked upon not as a sufferer of the disease but as a carrier and should be so treated.

Dr. E. B. Godfrey (Minden): As a public health worker, I cannot resist the temptation to give credit to Dr. Lucas for his excellent paper, and to express the appreciation of the full-time health officer of this State for the information derived. It has been my privilege, as well as that of many other health officers, to have given seven or eight thousand immunizations of diphtheria, during the last few months.

The problem that comes to the public health worker is not the type of diphtheria, it is the method whereby we can induce the children and their parents and others to accept the antitoxin. The human element side comes into play.

I live in Webster Parish. We, unfortunately, have in our parish a great many members of that sect known as the "Holy Rollers." A few weeks ago, two children died in the northern part of the parish, due to the fact that the State Board had not any station where antitoxin could be procured. One physician made frantic attempts to obtain antitoxin in order to save the children. Now, we have a station in Minden. I think we have another in a nearby town, so none of the physicians need suffer from lack of proper supplies.

In the above mentioned section, all the people belong to this sect known as the "Holy Rollers," and they concluded, after this death, that it would be advisable to accept anything that the health worker might promote. I succeeded in not only immunizing one hundred and seventy-seven Holy Rollers, but I also included the preacher and his family.

Dr. R. T. Lucas (Shreveport): I wish to thank all those who discussed my paper, constructively and destructively.

Dr. Bloom asked the question as to just what to do with carriers, or what I do with carriers: I cannot give the correct answer, and I do not think the correct answer has been worked out. These cases should be watched very carefully and kept in isolation, if possible, but when you consider the number of individuals who are carriers of virulent diphtheria, at least of a diphtheria bacillus, (the virulous test is rather complicated for routine use) why, it becomes a very hard problem to solve. As I said in the paper, when possible, these cases should have a tonsillectomy and, in most of these cases, the diphtheria bacilli disappear.

As to susceptibility, the patient I mentioned was the case of one of a family of negroes at Willard Parker Hospital, when I was working there. Three individuals came to the hospital, one of the family had died before they came to the hospital. One had a fairly severe attack, another had some form of paralysis, and the particular patient that I just mentioned developed almost total paralysis. We seemed to find there rather a family susceptibility. That may have been a coincidence.

I was a little misunderstood, possibly my fault, about putting the emphasis on the clinical diagnosis rather than the laboratory diagnosis. As a matter of fact, the way the cultures are taken, the way the majority of you will take them, you are going to get a certain percentage of negative cultures in positive diphtheria. In those cases if there is any question about it, those patients should be given antitoxin. That is not debatable at all. If a culture is taken, probably you may have to dig under the membrane and cause bleeding before you get a positive culture. Nine times out of ten, that is not done. You may get the culture on the surface of the membrane and it may be positive. If you do not get it, it does not mean that you have not got diphtheria. You are more apt to get a negative culture in true diphtheria than you are to get a positive culture when you haven't got diphtheria. There may not be such exceptions, but I maintain that there are certain cases in which it is extremely hard if not impossible, even for a trained man to find the diphtheria bacilli successfully.

The further along I go, the sooner I feel inclined to intubate a patient with laryngeal diphtheria having respiratory difficulty. These individuals have two or three signs that are very im-

portant. As is usually the case in a child of one, two or three years of life, if you are getting all the respiratory muscles brought into play, if the patient is having retraction of the chest wall, if the patient is showing a certain amount of cyanosis, that patient should be given relief, because if you do not give relief, the relief later on is not going give the results that it should. In other words, the damage to the heart, as Dr. Guthrie said, has gone on, and you may save the patient for the time being, but you cause an enormous burden on the heart.

It is the custom at Willard Parker, to routinely give the diphtheria antitoxin intravenously, and out of quite a large percentage of cases, I do not remember ever seeing a serious reaction. Of course, they do occur, but I do not believe your reaction with a clear serum that has no lipoids in it, or a minimum amount of lipoids will give you any higher percentage of reactions than it will where it is given subcutaneously or intravenously.

The Research Laboratories were putting out a refined product which did not give much reaction. A number of houses are now putting out a serum that is very clear, and that type does not give as much reaction as the serum that you hold up and find to be cloudy. I think that covers most of my subject.

PTOSIS SUPPORT FOR THE VERY THIN INDIVIDUAL.*

A. K. DUNCAN, M. D.†

NEW ORLEANS.

The apparatus about to be described for those suffering from visceroptosis was intended and primarily designed for those presenting a marked scaphoid abdomen when lying down. A routine examination in the erect position will disclose more cases of ptosis in these individuals than is generally suspected. Others with more fat within the abdomen and in the abdominal wall are often entirely relieved by the various forms of belts, with and without pads, of which there are a sufficient variety to meet practically any individual requirement.

It is perfectly true that rest in bed with the foot of the bed elevated and forced feeding will be of great benefit and these means should be used to their greatest extent in correcting ptosis, but individuals will be found who cannot afford any loss of time from their occupation, and this fact led to the design of the first of these supports in March, 1923.

The patient is to be placed in a moderate Trendelenburg position. A plaster bandage is then used to take a cast of the lower abdomen from just above the umbilicus to just below the pubic bone and laterally to well beyond the anterior superior spines and iliac crests. The bandage is passed back and forth until sufficient thickness is obtained, molding it from time to time as in the making of a molded splint. When sufficiently thick and before the cast has set, it is imperative that more vigorous molding be done over the crests and anterior superior spines to exaggerate to some extent their imprints on the cast. The cast is kept well in contact with the abdomen and molding continued as described until fully set and then removed.

We now have a negative imprint or cast of the lower abdomen and iliac crests. When this is dry, it is turned upside down and the ends boxed in forming a mold which is poured full of plaster and allowed to set. This results in a positive cast of exact reproduction of the anterior lower portion of the trunk of this particular individual when laying down. Using this as a working model, a sheet of eighteen (18) gauge aluminum is laid over it and with a hammer worked into shape until it exactly conforms to the plaster cast. This gives us now an aluminum cast exactly fitted to the individual except that the molding over the iliac crests and spines has been exaggerated some, as advised in making the negative cast. When this aluminum cast is fitted on the patient it may touch but should not bear heavily on the bony prominences. Now to trim up the edges. With the aluminum in place on the patient, it is

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marked out to fit just above the pubic bone and inside the groins up to the anterior superior spines and then outward to allow two to three inches beyond the crests and above, along the line across the abdomen formed when the patient bend forward. *Note:* Allowance must be made for rolling the edges when finishing, and it is well to have the patient raise each thigh to a horizontal position while standing on the other foot to be sure sufficient clearance is made for the extensors at their attachments to the spines. Any slight irregularity in the fit is noted and corrected by bending or use of the hammer. The edges are then rolled and the aluminum polished. It may also be perforated like a salt shaker or not as is desired. The usual belt attachments of non-elastic material are now riveted to the posterior edges of the aluminum, a bridle formation being satisfactory, the end of one passing between the two straps from the opposite side posteriorly and both end brought around in front to buckle. When this is fitted to the patient, a point will be formed in the midline in front at which the straps buckled over the support distribute the pressure evenly and comfortably without tending to tip the support above or below and here a flat hook is to be riveted and the belt slipped under it to keep it always in place. Hose supports or perineal straps may be attached depending on the build of the patient. This support is to be put on before arising, the patient sleeping with the foot of the bed elevated, or after getting in the knee chest position and then turning on the back. It may be worn next the skin or over a thin undershirt and if properly fitted, it is not only not uncomfortable but the patient will wear it because they are comfortable with it on. It is clean, does not stretch and does not wear out. It is easily put on and it always fits. (Some changes will be required as the patient gains weight, but they are quickly and easily made.) Best of all, when the patient stands it really supports the viscera, including the kidneys, ranking next to pregnancy in relieving ptosis in women and with the advantage that in this case it is equally available for men. As it corrects the ptosis it relieves the constipation and in several cases albumenuria due to kidney ptosis and also the multitude of abdominal pains for which people are often unnecessarily and unsuccessfully operated on. With proper support they can be put up and about and they can eat again without distress, thereby gaining much needed weight and strength and eventually are cured and able to discard the artificial support.

I have not attempted to use this as a cure-all, reserving it for the type of case mentioned at the beginning of this article and so far it has proven most satisfactory in my hands and in the hands of others here who have used it in similar cases.

Thanks are due to Mr. Frank DeMandre of the Surgical Supply Company for aid in working out various mechanical steps in the execution of this idea and it will be of interest to some to know that the cost of material and labor in making and fitting of this support will amount to about $17.00, as it is very simple after a little practice.

A thorough search of the literature has not been made but a superficial examination has not revealed any article in which this idea for correction of ptosis has been mentioned.

DISCUSSION.

Dr. A. E. Fossier (New Orleans): Dr. Duncan has broached a topic of exceedingly great interest and importance. Visceroptosis is a condition of frequent occurrence which the diagnostician must recognize in order to help or cure. I do not believe in the use of trusses, as such, in the treatment of visceroptosis because frequently they exert pressure where it is least required and may cause injury to the patient. It often occasions a certain amount of adhesions, local irritation and hardness of the skin.

Such drastic measures are not necessary for the correction of visceroptosis. The bandage will do the work without these inconveniences. A supporter is necessary in the treatment of Glenard's disease, in fact these patients feel the necessity

for its use. The patients request it. I have often been asked by them, "Doctor, give me something to hold up my abdomen and I am sure it will make me feel better." Furthermore, every drugstore and surgical instrument shop has some type of abdominal suport for sale. The medical journals, as well as the lay journals, carry all kinds of advertisements advocating its use. Unfortunately, many of these do not fulfill the individual requirements of the patient, and are therefore of no value. For one hundred years they have been in use. Glenard, after whom the disease was named, revived the question at the end of the eighties and devised a bandage or supporter for the correction of these conditions. Corsets, trusses and various other appliances give more or less good results. The object of the supporter is to not only raise, but to maintain in a lifted position the abdominal viscera. The belt, bandage or supporter can be used to much advantage in cases of visceroptosis. We must not depend on the bandage alone to correct visceroptosis: if we do not have sufficient strength of abdominal muscle a supporter is indicated until such time that diet and exercise will augment the tone of these muscles.

The true test of a supporter is: It must lift up the abdomen by exerting pressure upward and backward, and only a few of the commercial supporters have this qualification. As a rule they exert in all directions except inwardly and upwardly. The supporter designed by Dr. Lerch of this city has in my opinion, given the best results in the treatment of splanchnoptosis. Visceroptosis is not confined to the thin individual, we find it also in the obese, and a fat abdomen can be supported as well as an emaciated abdomen. After a while, when the muscles have been strengthened, the visceroptosis gradually disappears, the supporter can be dispensed with.

Dr. P. A. McIlhenny New Orleans): I agree with Dr. Duncan in practically all that he says. I think the majority of visceroptotic individuals start in early childhood. Sometime ago Goldwaithe called our attention to this possibility. Many years ago G. E. Davis of Philadelphia gave us what is now known as Davis' line. In the erect position (illustrating where Davis' line would pass in the normal person in erect position, and where in the visceroptotic individual) the mastoid is here, the shoulder here, the great trochanter here, the knee here and the calcaneal-cuboid here; while in the individual with a hollow, rounded back and rounded abdomen, you find the mastoid here, the shoulder here, the hip here, the knee here and the calcaneal-cuboid here. This position tends not only to abdominal ptosis, but to thoracic ptosis as well.

The responsibility rests on the general practitioner in examining the children early in life to see that through a faulty posture they are not allowed to develop into visceroptotics. See that they assume and maintain the proper position. It has been remarkable to me, in examining school children, to observe the faulty attitude assumed by so many of these little children and unless this mal-position is corrected you may rest assured that as they grow and take up their occupations they are going to suffer from visceroptosis. But if you correct this faulty attitude in early childhood the individual will grow to a point where they will not need a belt or truss.

Dr. I. M. Gage (New Orleans): The belt described by Dr. Duncan is probably the best mechanical support for visceroptosis on the market today. Of course in treating visceroptosis it is a well known physiological fact, that to restore the viscera to their normal position, the abdominal muscles must be kept in good physiological tone as well as there must be an increased amount of fatty tissue stored in the mesentery. To accomplish this patients must take exercise and take rest periods and forced feedings.

On account of economic conditions this is impossible in the majority of cases therefore a mechanical support of some type must be used in conjunction with exercise and so forth until the patient is in such a condition that there is a normal status present. All of this can be most efficiently carried out by the use of the prescribed belt as well as the other treatment outlined by Dr. Duncan.

In the meantime the patient is completely relieved of her symptoms.

I have only had the pleasure of using this belt in two cases, but have had the pleasure of seeing both patients completely relieved of hematuria, constant backache and vomiting which was the result of visceroptosis.

I heartily endorse the Duncan belts with the muscular exercises advised by him.

Dr. A. K. Duncan (closing): I purposely did not bring in any discussion on visceroptosis in my paper, because I felt sure it would be taken up in the discussions that followed and that there would be very little said of the belt proper.

I think Dr. Fossier missed the point. I did not claim that other belts were no good, but that with certain thin types of individuals they do not fill the bill. He missed, too, I think, the advantages of the belt that I described—that it is a cast taken of the patient when lying down, the normal position for that abdomen; it does not press in vital places or hurt the skin, merely holds the abdomen in normal position so that when the patient stands up she stays put. Belts and pads force the abdomen into a shape it should not be. With this belt there is no bulging in any place, no elasticity to make pressure and

whether the patient is lying down or standing up the abdomen is in the same position. These are the advantages that I claim for the belt.

It does not answer for a fat individual; does not answer for the great majority and, as I said in the paper, it is not a "cure all." There are only a certain amount that require a belt of this pattern, usually a very thin abdomen of the scaphoid type, which does not touch the support when lying down and which has to bulge at least two inches before it does touch when in the upright position, and when the patient does stand, receives the proper support.

Dr. Gage's experience with these supports has been the same as mine. I tried various belts on a very poor individual who could not afford to stop working, but none of them gave any relief. She could not eat and vomited all the time. Since she has been wearing this type of belt her improvement is marked and she continues to gain weight; her present weight is 135 pounds.

I did not go into all the belt difficulties, merely gave a resume of the conclusions we have reached now. With the moulding as a model for the support it absolutely fits; it is very light and does not give the patient corns on the abdomen or anything of that kind.

Dr. McIlhenny's point about posture is well taken. We do not put this belt on and discard everything else, but see to it that the patient is properly fed and takes abdominal exercises to strengthen these muscles. I think I brought out that the object was to put these people in condition where they did not require a truss or support. Not a cure all, merely an abdominal support, but that proportion who need it are certainly benefitted by it as by no other belt used for these indications.

THE PATIENT PAYS THE PIPER.—More moderate-priced hospital beds will help to relieve the present high nursing charges, and better organization of nursing service with available part-time nurses coming from a community center will mitigate the excessive cost of private nursing in the home. For smaller communities the community hospital and health center with community nursing service will do much toward providing more adequate relief at reduced expense. The public wants and deserves good medical care at a lower cost. The physician wants and deserves an assured income and a comfortable living as a recompense for his services. Earnest efforts are being made for the attainment of this millennium, but let us not forget that our annual bill for patent medicines still runs into the millions, and that we are still supporting a host of cultists, quacks, and irregular practitioners.—Garland, Joseph: The Independent, Sept. 15, 1928, p. 255.

THE USE OF LIPIODOL AS AN AID TO DIAGNOSIS OF NASAL SINUS CONDITIONS.*

A PRELIMINARY REPORT.

A. I. WEIL, M. D.,
AND
W. F. HENDERSON, M. D.†
NEW ORLEANS.

This is a preliminary report to put on record a line of investigation which we have been undertaking during the past six months. Although it is too early to draw any definite conclusions we have nevertheless gone far enough with the work to feel that it will prove to have a very definite value from an anatomical, a pathological and a diagnostic standpoint.

The process of injecting the sinuses of dried skulls with an opaque material such as bismuth paste, molten metal and the like and making radiograms of the skulls so injected in determining anatomical data, landmarks and anomalies is old and has been of much value in mapping out radiologically the anatomical relations of the various sinuses with the nose and the skull. It is this method which was used by Granger in determining his sphenoid outlines and landmarks.

It occurred to us that in lipiodol we have an admirable medium with which we could inject the sinuses of the living and with roentgen-ray obtain valuable information as to their anatomy, pathology and diagnosis. The sinuses which lend themselves most readily to this method of investigation are the antrum and the sphenoid, and our work has been practically limited to those sinuses. We have had no frontals up to now which seemed to require this procedure but doubtless some will occur and there is no reason why it should not be applicable to any frontal into which a probe can be passed.

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It must be understood that we do not profess to be the first to use lipiodal in the sinuses. That procedure has been used by others as well as by ourselves for a long time in occasional cases. What we are advocating is its systematic and routine use in sinus diagnosis just as we have heretofore used the simple roentgen-ray.

The lipiodol is introduced into the antrum through a Douglas canula just as one would use it in making a trial puncture of the antrum. The method is extremely simple and presents no difficulty whatever.

The sphenoid, on the other hand, is a little more difficult to enter, and indeed it is not always possible without preliminary surgical procedure to introduce a canula into the sphenoid and obtain a satisfactory filling with lipiodol. Sometimes we think we are in the sphenoid for we feel the canula pass into a large cavity in the region of the sphenoid through a small opening, which was thought to be the natural sphenoid opening, and it is felt quite surely that the canula was in that cavity, but the injection of the lipiodol shows very definitely that the canula was in a large posterior ethmoid cell, or in some cases pictures of the canula in place show that it was in no cavity at all. It is easily conceivable that in operating such a case we might think we have curetted out a sphenoid sinus when as a matter of fact we have not entered the sphenoid at all but have curetted out a large posterior ethmoid cell in that region. We may in consequence be disappointed in not getting the beneficial results we anticipated. This may be the case particularly when the sphenoid alone is operated and not the posterior ethmoid cells also, for after a complete middle turbinectomy and posterior ethmoidectomy it is not so easy to be deceived as to entrance into the sphenoid. However, these experiences revealed a distinct possible source of error. It is certain that in some without this preliminary procedure we may be mistaken when we think we have curetted the sphenoid wheras we have been only in the posterior ethmoid cells. We are showing several slides in which this possibility is apparent. I think in view of these facts we are justified in saying that where the operative findings are at variance with the roentgen-ray findings they should be checked up by this method in order to be sure that the sphenoid was really operated.

Other anatomical peculiarities and anomalies have been disclosed by this method which might lead to error in diagnosis or in surgical procedure. For instance, we have seen several cases in which there is a very marked difference in the size of the sphenoids on the two sides and in which the sphenoid on one side extends well beyond the median line on the other side. We are showing a picture of one such case, and it is apparent from this view how, in operating a sphenoid on the left side, for instance, we might enter the right sphenoid or vice-versa. Another anomaly we are showing is a case where both sphenoids were entirely filled with lipiodol from injecting one side. This is explained by the fact that there is a dehiscence in or absence of septum between the two sphenoids, thus making them into one large cavity. An analagous condition is sometimes found in the frontal sinus. In such cases an empyema of the sphenoid on one side might easily cause ocular or other symptoms on the opposite side.

A further condition disclosed are those large enclosed posterior ethmoid cells as large as a sphenoid sinus and situated as far back in the nose. We are showing several such. This condition is of peculiar interest as showing how easily we may be deceived if we attempt, as has been recommended by some, to decide that we are in the sphenoid by measuring with a graduated probe, either inside or outside the nose, the depth to which the probe has penetrated. We are showing one case in particular where the large posterior ethmoid cell extends posteriorly quite to the depth of the sella turcica, and if we judged from the depth alone we should

feel quite certain that we were in the sphenoid. We are forced to the conclusion from these observations that such a method of orientation is faulty.

Surgical accidents in sphenoid operations have been reported from time to time in which the instrument was inadvertently introduced into the meninges and cranial cavity, with or without a subsequent meningitis or brain infection. We feel that preliminary method of investigation may tend to lessen the likelihood of such an accident. At any rate, it is worth the attempt.

PATHOLOGY AND DIAGNOSIS.

In some cases of antrum affection we have the experience that though the Douglas canula is in the antrum we cannot force any fluid through. One such case is being presented. With the Douglas canula in place lipiodol was injected and the subsequent radiograph showed that though the canula entered the antrum the only lipiodol visable were a few drops trickling back along the needle tract, into the nose. A diagnosis was made of a tumor mass completely filling the antrum which diagnosis was subsequently confirmed by operation. After removal of the tumor the antrum could be well filled with lipiodol. In this connection it might be mentioned that in controlling our results after antrum operation we experienced some difficulty in retaining the lipiodol in the antrum long enough to make a picture. As we all know, after the radical antrum operation a very large opening into the nose is left. The lipiodol ran out into the nose through this large opening as fast as it was injected and radiograms showed no lipiodol remaining into the antrum. This difficulty was obviated in the above case by placing the head in a lateral position, operated side down on the plate and making the picture at once with the head in this position and the needle in place before the lipiodol could escape. This method, however, for obvious reasons is not desirable, and in later cases at the suggestion of Dr. Henderson we succeeded in retaining the lipiodol in the antrum in spite of the large nasal opening by packing the inferior meatus around the canula with wet gauze. This completely filled the large nasal opening and the lipiodol was retained in place by the gauze so that the radiogram could be made in the normal position. This method has proven very satisfactory.

Other cases of antrum infection showed greatly thickened membrane without the presence of polyps, while others showed distinct evidence of polyp formation. Without the lipiodol injections it is practically impossible to differentiate between these two condtions. Also injections are very illuminating in those cases of antrum involvement in which, though there is a distinct darkness of the antrum both with the roentgen-ray and transillumination the fluid from the trial puncture returns perfectly clear. The lipiodol enables us to differentiate between merely thickened membrane, polyp and tumors of the antrum as a cause of the darkness.

In the sphenoid the simple roentgen-ray may show a cloudiness of that cavity or a thickening of the bony wall suggesting hyperplastic sphonoiditis but it does not permit of a differential diagnosis between thickened mucous membrane, hyperplasia, polyp or simple pus in the sphenoid. It may give us a suggestion, but the lipiodol as we show allows us quite definitely to differentiate these conditions and guide us in deciding on proper treatment. So far our lipiodol findings have agreed quite well with the tentative diagnosis of the simple roentgenogram. We have not up to the present time had sufficient operative cases in the sphenoid to say how well they will check up with the lipiodol preoperative findings but will doubtless be able to report on that at a later date. We have as yet had no tumors of the sphenoid and cannot with certainty speak on that point. We are of the opinion, however, that the lipiodol would enable us to diagnose such a condition.

We have not used the Proetz displacement method of filling the posterior sinuses with lipiodol for that method fills most of the sinuses indiscriminately and does not give us the very information we are often seeking as to entering the sphenoid and its distinction from the posterior ethmoid cells.

We have used the Granger position and the Granger landmarks in most of our sphenoid work and have on the whole found them very reliable and satisfactory.

It must be emphasized in closing that this is only a preliminary report. A great deal further work will be necessary and many more observations made before we can conclude definitely as to the absolute value of the method and the various conditions in which it is applicable. One conclusion, I believe we are already justified in making. Though the various anatomical peculiarities and variations which we have described are not new but have been known for a long time to exist in occasional cases, we have heretofore had no method of determining in just which patients they might be present. The use of lipiodol enables us to determine this and so guide us beforehand in diagnosis and treatment.

DISCUSSION.

Dr. H. L. Kearney: Dr. Henderson spoke of using other substances than lipiodol in the injection of the sinuses for outline. Some three or four years ago, in a case of chronic frontal sinusitis, I used a 20 per cent solution of sodium iodide. In the one case in which I used it I found the substance impractical because it was not sufficiently radio-opaque to outline clearly the paranasal sinuses. Bismuth subcarbonate, brominized oils and many other preparations have been brought out from time to time, all of less density than lipiodol. Lipiodol is the ideal substance to use for determination of pathology by roentgen-ray study. A substance must be sufficiently radio-opaque to produce clear outlines of the sinuses in the bones of the skull.

From a practical standpoint Drs. Henderson and Weil have covered their subject pretty thoroughly. Their instructions in regard to intranasal measurements and explanations how to discriminate in diagnosing pathology of the mucous lining of the sinuses, the hyperplasias from polypoid conditions, etc., is very interesting. This method of outlining the sinuses and other anatomical structures is going to be of great service and to the rhinologist especially should prove of inestimable value.

Dr. L. J. Menville: In the study of obscure conditions the roentgen-rays have been used over a long period of time and particularly as an aid in sinus infection it has proved of considerable value. Among the technic devised by eminent radiologists, with reference to the study of sinus conditions, we might mention the work of Dr. Granger as one of the outstanding features.

Dr. Forestier of France was the first physician to use lipiodol as a diagnostic agent and used particularly in diagnosing bronchiectasis, later employed by others in diagnosing sinus pathology. Because of its high absorbability rate lipiodol creates a shadow distinguishable from any overlapping shadows of lesser density.

I believe that this method is going to fill a long-felt want, enlighten us in regard to obscure conditions and be of great assistance to us in our research work. It gives us a roentgenogram readily interpreted by roentgenologist and physician. Potentially it seems to me to have great promising value as a practical diagnostic measure, and wish to congratulate the authors and believe them too modest in their claims. I would like to follow up this work of Drs. Henderson and Weil, which I am sure will come to a most successful issue.

Dr. M. Earle Brown: Within the past few years it has been my privilege to study the various methods used in assisting radiologists in determining evidence of diseases within the paranasal sinuses. The pictures presented tonight are interesting, well taken, artistic and represents diligent study, yet the method is not new and must necessarily be instituted with more or less danger to the patient. At least the method requires the performance of a surgical operation requiring skillful technic, which even then is sometimes wrought with danger.

Van Osdol in reviewing the literature of opaque solutions injected into the sinuses for diagnostic purposes, commences as far back as 1902 with the old aqueous mixture of lead sulphate as used by Moritz Weil, and the injections of bismuth by Beck and Ramdoher in 1919, and the work of Brunetti and Filippini in 1924. Van Osdol in 1925 with neosilvol verified the existence of antral polyp and continued with his injections of neosilvol up to March, 1925, when Reverchon and Worms reported their work with iodized oil injected into the sinuses, then he commenced using lipiodol.

Proetz of St. Louis has done considerable work with lipiodol injections and exhibited a most creditable display at Milwaukee in 1926. He depends upon the position of the head to fill the sinuses for diagnostic purposes.

As very little is found in the literature upon this subject, one wonders why such a procedure should be necessary to establish a link in the diagnostic chain of sinus pathology. As the Granger position shows definite changes in the sphenoid, and an interpretation by him in over four hundred cases demonstrates his ability to differentiate opacities, due to hyperplastic conditions and those due to pus and polyp.

Dr. Homer Dupuy: At Charity Hospital, in co-operation with Dr. Granger and his staff, we carried out a series of experiments in the application of iodized oils. Thus far we are not very enthusiastic. Dr. Weil has stressed the possible advantage of tracing the paranasal sinuses with lipiodol. This is much to be desired, and yet I cannot say that we have succeeded in bringing out the exact position and contour, especially of the posterior ethmoid cells.

Without crediting me with priority in the measurement from the anterior nasal spine to the anterior wall of the sphenoid sinus, by way of a perfect lateral roentgenogram of the skull, Dr. Weil referred unfavorably to the method. Therefore, I am on the defense, without getting away from the matter of discussion before us. To enter the sphenoid through its ostium, or anatomical opening, is not always easy, or even feasible. If we are compelled to resort to puncture method for introducing the oil, therein lies the danger. The sphenoid is too much of a danger zone to forcibly enter it without highly approximate measurements to the anterior wall. (Roentgen-ray picture.) This is from Charity Hospital. Lipiodol, introduced into sphenoid sinus without previous Roentgen-ray lateral measurements, is shown as having entered the cranial cavity. Many globules are seen at the base of the skull, under the dura. Without previously known distances the needle entered the roof of the sphenoid, which is formed by the sella turcica. Strict attention to my measurements might have avoided this unexpected result. This is ample proof that there is an element of danger in the use of lipiodol, especially when applied to the sphenoid sinus.

Now, it seems to me that with the Granger method of diagnosing sphenoiditis, we are apparently equipped with a rather dependable method. Then why resort to other measures which are unquestionably fraught with decided danger. (Picture by Dr. Dupuy.)

Dr. Amedee Granger: The presentation of Drs. Weil and Henderson is very interesting and I can see a distinct use for the method in demonstrating the existence of pathology in the sphenoids.

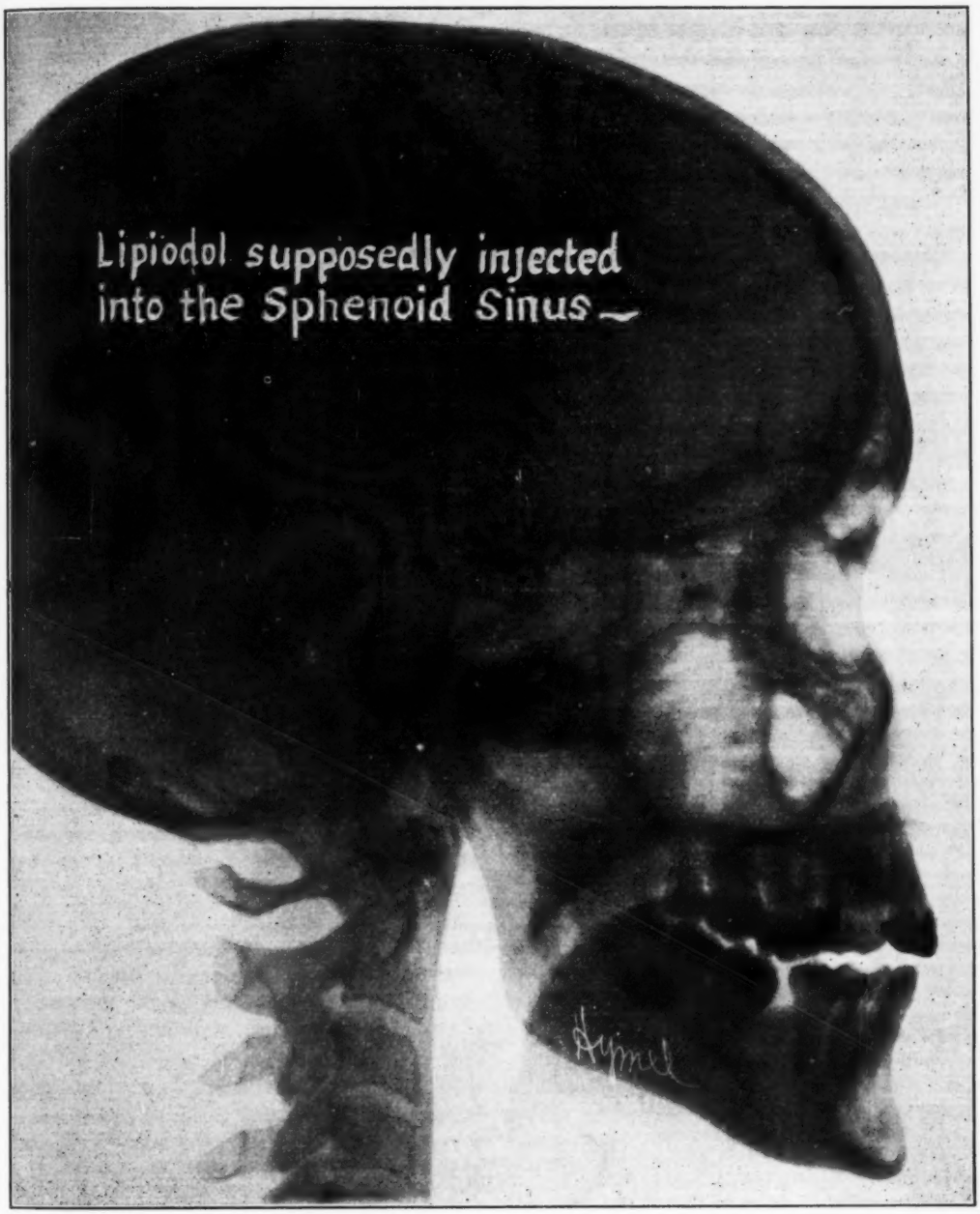
I can even see where it might assist in making a differential diagnosis, but I must say frankly that personally I have not found it necessary to use lipiodol to do so, and that I have been able in the last five years to differentiate pus from hyperplasia, and these two from a polypoid condition, in the radiographs made in my position without any trouble.

I have seen and diagnosed six cases of tumors of the sphenoid; by a careful study of radiographs made in my positions, including a 7 foot lateral view without the injection of lipiodol.

We made use of the lipiodol injection in a number of cases in which the existing pathology had already been diagnosed by my method and merely obtained a confirmation of the diagnosis. I think with Dr. Dupuy that the injection of lipiodol into the sphenoid is not without danger. I saw the case reported by him and remember vividly the terrible pain this patient had for a period of over a week: first intense headache, then pain in the neck, and finally pain in the back and lower lumbar region, which persisted for four or five days.

Dr. W. F. Henderson (closing): The point which has been brought out in discussion tonight with reference to the accuracy of different techniques in arriving at a correct diagnosis holds good when the interpretation is made by the originator and perhaps a few roengenologists, but these methods have not a universal application, so that every physician is not in a position where he can go indiscriminately to any radiologist and secure an answer which is satisfactory.

We are trying to find something which will simplify the interpretation of the roentgenogram in the study of sinuses. We realize that lipiodol has previously been used by others in this work and we are merely endeavoring to facilitate its use and advance its efficacy. In talking to men outside of New Orleans who have not come in contact with Dr. Granger, it is viewed favorably. Listening to them talk about their sinus work, I gain the impression that there is a great deal of confusion about the use and interpretation of the methods so easily understood by the originator, and it is in such cases particularly that the methods we are advocating has a place. I do not doubt Dr. Granger's ability to make these diagnoses, as he says, but not every physician in the country has access to Dr. Granger, nor have all roentgenologists his skill.


Lipiodol supposedly injected
into the Sphenoid Sinus

We do not use this method in all cases of suspected sinus pathology, nor do we advocate it, but utilize it only after the fact has been established that there is some change in the sinuses, in order to shed further light on the condition.

Dr. A. I. Weil (closing): Replying to Dr. Brown, I wish to state that the Proetz displacement method fills the posterior sinuses indiscriminately, the sphenoids and the ethmoids, whereas the very purpose of this procedure is to discriminate between the posterior ethmoid and sphenoid so as to prevent entering and operating a posterior ethmoid and thinking we have operated a sphenoid.

I want to emphasize one fact which has reference to Dr. Brown's statement that a surgical procedure must precede the injection of lipiodol into the sphenoid. This is not at all true. We do not use the boring method advocated by Dr. Dupuy, nor do we take a burr and open the anterior wall of the sphenoid; we merely pass a cannula through the natural opening of the sphenoid, which can hardly be termed a surgical procedure. It is true that one does not always succeed in passing the cannula into the sphenoid; it sometimes goes into the posterior ethmoid. In such cases one might also miss the sphenoid in the case of operation and the information obtained by this method tends to prevent such an error.

Replying to Dr. Dupuy, I agree with him that to enter the sphenoid through the natural opening is not always feasible, but in those cases lipiodol cannot be introduced without the boring or the puncture method. Now I want it distinctly understood that we do not advocate the puncture of the sphenoid in order to introduce lipiodol, but only the injection of lipiodol in those cases where the cavity can be easily entered with the cannula. I am surely in accord with the opinion that a puncture or burr entering into the sphenoid for the simple purpose of injecting lipiodol is not justified under ordinary circumstances—it is only in exceptional cases where such risk should be taken.

Now in regard to Dr. Dupuy's measurements of the depth of the sphenoid by probe, I wish to say in the first place that though I did not mention his name in referring to this method in my paper, the omission was deliberate, as I criticized adversely that method, and it was only out of consideration for Dr. Dupuy that his name was not mentioned. At the same time, he will bear me out in the statement that I notified him personally that this matter was to be discussed in my paper, and requested him to be present to defend this method if he desired. There is no question in my mind, after seeing the plates which we have shown to-night, that those cases where we have shown the posterior ethmoid to extend quite as far back as the sphenoid, reaching practically to the sella turcia, no method of measurement, either external or internal, will determine for us whether or not we are in the sphenoid.

MYOPIA IS ESSENTIALLY A PATHOLOGICAL CONDITION.

T. J. DIMITRY, M. D.,

NEW ORLEANS.

Myopia, an error of refraction, is the commonly adopted heading in textbooks to designate a condition in which the patient does not see objects clearly at remote distances. The habit of partially closing the lids has given the name "Myope," which is derived from the Greek, which means to close or shut the eyes. Myopia is defined as a dioptric condition in which rays of light from a distant object are brought to a focus before they reach the retina. In the normal eye the focus is on the retina. This displacement from the correct position is occasioned by one of the following changes: First, by an increase in the refraction of the media which the light has to pass through, and, second, by an increase of the diameter of the eyes. The myopia of the first is quite readily understood for the change in the lens, cornea or media are secondary to demonstrable pathological conditions; instances of an increase of curvature of lens observed in diabetic cataract; lens changes in any form of incipient or immature cataracts. The myopia associated with iritis; the myopia produced by increased curvature of cornea following inflammation of the cornea in which the cornea has become more convex. But the great problem needing explanation in the second, called axial myopia, in which the eye has elongated antero-posteriorly. Plempius as early as 1632 recognized the lengthening of the anteror-posterior diameter of the eye in myopia. Boerhave in 1708 agreed with this

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*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

explanation and added the increased curvature of the cornea. Morgagni in 1761 demonstrated the length of the myopic eye. Heine showed conclusively the elongation to be in the posterior segment and not in the whole eye as was thought. It was a bulging from the equator backwards; this posterior section of sclera which is normally thicker than the anterior has thinned out to the dimension of the anterior. Even the posterior section may not be regularly bulged backwards, the sclera of the temporal side of the optic nerve may have a greater distention than noted on the nasal side. This distention is called a stapholoma. Arlt in 1854, again emphasized these changes and this axial elongation observation received general recognition as an existing condition. Myopia is not a condition observed in the infant. Ulrich and Schleich could not find a single case after examining many thousand babies. Many authorities are quoted as stating that in people living in the natural state, that is uncivilized, one will not find a single case of myopia. It meets with common approval that myopia increases during the first two decades of life and those called upon to use the eye for near work are the greater sufferers. Theories are numerous reciting an explanation of the elongation of the globes, but the hypotheses are contradictory, no single supposition being acceptable to any great number of investigators. Myopia is an error of refraction, but only concurrently with the elongation of the eye. Glasses are fitted which corrects the refracted defect but the co-existing stretching of the globe which undoubtedly preceded, is ignored. The different proposals in explanation continue to be debated and are not entirely satisfactory even to a few. Many of the very incipient changes observed in the myopic eye have provoked disappointing discussions and conclusions. It is generally recognized that there is a choroditis in myopia but it is stated not to be a pathological inflammation but is charged to atrophy. The latter atrophy is dependent on the stretching of the eye, so stated, and without inflammation. Salzmann, Schwersenski, DeDecker and Masselon state the changes are spontaneous and primary, and recite concrete example of Bruch's membrane. Why the eye elongated (the axial myopia) is our debatable difficulty, and it is the purpose of this contribution to have you consider with me this problem. The hypotheses advanced for this increased diameter of the eye are based upon mechanical laws, thus ruling out pathological causes and asserting as essential factors in its cause the pressing and pulling by muscles of the eye. Philippi and Stilling claim that the superior oblique muscle presses and pulls the eye during near work producing tension within the globe with subsequent enlargement of the eye. Arlt claims the pressure alters the outflow of blood producing congestion, while Von Graefe charges the distortion to the action of the external and internal recti muscles, and goes so far as to recommend cutting of the muscles to correct the condition. The contour of the cranium and the position of the orbit, are charged as exciting cases for this mechanical pressure by different authors. Hasner claims the optic nerve is too short, pulling the sclera of the eye to an increase in length. Each of these mechanical theories has its champions and other authorities agreeing with a certain number of statements.

The mechanical explanation is made more acceptable because of statistics in which myopia comes on during the time the eyes are needed for excessive near work. The statistics prove the harmfulness of this excessive use of the eyes. Further, school classes for myopic children are being conducted in different sections of the countries admitting of this harmful effect, all aiming to correct the excessive use of the eyes. Randall's exhausted research on over two hundred thousand eyes confirm these results: that there is no myopia before the school period, and eleven and four-tenths per cent develop in the first three years of schooling with a slow

increase in the following years. These studies have been confirmed by others.

The writer accepts these facts which disapprove the contention that near work is the cause, for under the same condition of excessive near work a larger average of school children are not myopic. Advances in understanding what myopia is have been held back because of such mechanical explanations with promiscuous prescribing of glasses, assuming refraction as the cause with its associated near work. It appears reasonable to the writer to re-adopt and ask for further consideration for the abandoned views of Von Graefe, who at one time stated that myopia was a definite sclerico-choroditis, admitting thereby that inflammation and pathological changes were the cause. That these pathological changes in explanation of the condition should have been laid aside by himself and his confreres is in the writer's opinion a most unfortunate happening and has delayed the solution even to this time. Von Graefe deserted his original opinion because the microscopist was unable to find inflammatory changes in the incipient myopic eye and the subsequent changes were charged to pulling and stretching of the globe of the eye by intrinsic or extrinsic causes. It was unfortunate that he did not recognize that we had not sufficienly progressed in diseased histology to be able to detect microscopically a diseased condition, which, however, is present.

It is the purpose of this contribution to emphasize that the eyes are part of the whole body and bodily ailments do affect the eyes. Statistics are of little value in myopia if they do not rigidly consider the bodily condition of the myopic patient for an explanation of the cause. I have not been able to find a single example of a study of the general health of the myopic patient. It is unfortunate that specialization isolates or separates a part from the whole. Few diseases of the eye are primary *per se* and myopia is one in which the health of the body is an essential factor in its cause. It would be unjust to give vent to such emphatic statements without reciting the comments of others in possible confirmation.. Had only Von Graefe stood by his original contention, his power and influence would have spelled progress in myopia, while his retraction of his original statement has delayed a solution on a very serious ailment. Parsons states that myopia is entirely congenital, while the higher grades have in addition a truly inflammatory factor. He further states that there is no denying that inflammatory changes are to be noticed in the fundus of the eye. Donders says that near work cannot be the sole cause for it is found among people who rarely use their eyes in this manner. Manthner voices predisposition to a weakened tissue. Lange says that the elastic fibres of the sclera are deficient. Horner claims the high myope to be ill nourished and anemic. Stilling made the same observation. Schon states that scleritis is always accompanied by choroiditis and it is not improbable that the converse can occur and that both are due to an annular scleritis. Donders in 1866 stated that myopia is a veritable disease. Hirschberg prescribes cod-liver oil for the recognized anemic patients with myopia. He states that he adopts the plan of treating the body rather than the disease. Arganorez claims it is due to disurbance of internal secretion and clinical examination has revealed the existence of heredo-syphilis. Edridge-Green never has seen a case of myopia which was caused by near work. Elsching says that the progress of myopia may be checked by improving the general health and treating heredo-syphilis. Lamare suggests the nasal sinuses as a factor in weakening the sclera in the production of myopia. Hirsch sees a close parallelism substantiating his theory that the toxins of tuberculosis give rise to myopia. Peter would direct his efforts against lowered bodily health in myopia. Koster definitely charges the cause of all forms of myopia to a pathological condition which is generally inherited chorior-retinitis.

These remarks taken from different sources are deserving of consideration and are a confirmation, to a degree, of the writer's contention that myopia is essentially a pathological condition. The writer defines myopia as a disease of the eyes resulting from body ailments, such as the commonly constitutional diseases and foci of infections, and still further charges that dietary deficiency diseases may lower the resistance of the sclera, which may bulge as a consequence. He believes that mechanical factors are only contributory and these mechanical factors would have no effect upon a healthy resisting sclera.

In conclusion, a study of myopia is the investigation of health itself.

The body harbors the factor productive of the condition and we should not be neglectful of certain bodily constituents which give strength to tissue, and which are found lacking in dietary deficiency diseases. It must be remembered that the sclera bulges becauses it is weak and has lost its power of elasticity.

DISCUSSION.

Dr. A. R. Crebbin (New Orleans): In looking over the various authorities, one is impressed by the various causes given for myopia, and often in the next sentence is contradicted. Ball, in his new edition, lists, among others:

Hyperinclusion of mesoblastic vitreous material into the second optic vesicle.

Size and shape of the orbit.

Dragging on lamina cribosa at optic nerve entrance.

Compression of external rectus (during excessive convergence).

Inflammation of the choroid and sclera at post, pole, produced by constant congestion, bending and stooping.

Duane in his notes in Fuchs states:

Excessive use for near, as main cause, is doubtful.

Overuse of accommodation and convergence as causes unlikely.

Then there is the question of hereditary tendency. Certainly while it is not, or seldom is, congenital, there is a predisposition or a hereditary tendency due to anatomical peculiarities (slight resistance of the sclera) which predisposes to the development of myopia, when under condusive conditions like improper illumination and hyperopic astigmatism it is likely to take place.

So we are likely to feel with the essayist that these are not the main causes but contributing causes, and back of it all there is some disease process. Von Graefe suggests some inflammatory processes in choroid and sclera, by which the sclera is rendered softer.

But what causes this? I may not go so far as Dr. Dimitry to say that it is syphilis, tuberculosis, etc., but it may be any one of diseased conditions that is a basic cause. Or I might mention the suggestion lately made, I think by Dr. Weiner, some endocrine disturbance. He goes so far as to blame the adrenals, and gives epinephrine (1-1000) one drop in eyes t.i.d., and claims that certain cases of progressive myopia have been arrested. I have been using this, but only for some months, and cannot give definite reports. May I suggest to you to try it and keep records as to the results?

Whatever the underlying cause, all modern writers call myopia a disease. Fuchs says: "Prescribing glasses for near-sighted persons requires much experience and a careful consideration of all attendant conditions. In no case should choice of the glasses be left to the optician."

Since we are recognizing it as a "disease," the prescribing of glasses for myopia by the optician should be prohibited, and, *ipso facto*, if we stress its pathological-disease aspect and insist on it being thus recognized, the care of myopia by the optician could be prevented eventually.

Dr. W. R. Buffington (New Orleans): I agree with Dr. Dimitry in part—myopia is a disease. Heredity certainly is a predisposing factor. We must not forget that in modern civilized life myopia is increasing; that in a large number of individuals it is progressive; that progressive myopia becomes a serious condition in adult life.

When discovered in an individual, the prescribing of correct lenses does not end our responsibility. We must follow the child to his home; we must look into his entire surroundings, his health, his hygiene. We must follow him into the school; we must look into the hours of study, the lighting system for study. If need be, we must limit the hours of study—then, and not until then, will we have done our full duty.

Dr. F. C. Bennett (Monroe): I would like to ask Dr. Dimitry why it is a fact that Germans and Jews are so predisposed to myopia?

Dr. T. J. Dimitry (closing): I thank those who have taken part in the discussion.

The thing I tried to drive home is that myopia is a disease and that it is entirely unjust for the optician and optometrist to prescribe glasses for this condition.

Answering Dr. Bennett, I do not know as a fact that Germans and Jews have more myopia than other people, or that this has been shown by statistics. I do not believe that the statement of Hoerner will back you up; I think from his statistics you will find that this is quite correct; he does not acknowledge any more myopia in the Jews or Germans than in other people. However, I know where to look for definite information on the subject and as soon as obtained, will be glad to give the doctor an answer, referring him to my authority.

SOME PRINCIPLES AND PRACTICES IN CARDIOLOGY.*

GEORGE R. HERRMANN, M. D.,†

NEW ORLEANS.

A diagnosis of heart disease carries with it in the minds of most of the laity and of some physicians, especially those afflicted, an inevitable, early, rapid, and horrible death sentence. It is, therefore, important that we pronounce this verdict only after the most searching study and seasoned deliberation. The loosely descriptive terms that are often thoughtlessly meted out to patients are admittedly fear inspiring. A carelessly dropped expression as, "valve leakage," "heart damage," or "angina pectoris," will be conjured into a most terrible malady, and the mental tortures of the thusly self-sentenced individual are often more demoralizing than are the actual concurrent physical suffering. Bitter experience dictates the necessity of scrupulous caution and diplomacy with a real individual insight into the make-up of the patient. In the discussions of the findings, none but stoics should be informed unceremoniously of even the slightest cardiac abnormalities.

Physical abnormalities, such as murmurs, changed and adventitious heart sounds, are of definite diagnostic and prognostic significance. The signs, we must admit, signify only valvular damage, but from the type and the degree of valvular damage we may fairly accurately infer the severity and the etiological agent of the original infection. Especially is this true when the infection has been, as it usually is, of a streptococcic, rheumatic or syphilitic nature. These practically never spare the myocardium, but damage the muscle as well as the valve. At the same time it must be recognized that the defective mechanism of the damaged valve adds a definite burden and this, if not taken into account in the prevention of repeated strains, will in the course of time contribute materially to heart failure. The early reliable signs of myocardial damage are obscure and the functional state of the heart muscle is at times indeed difficult to determine.

It should, however, no longer be true, as Austin Flint wrote the year after his experiences in Charity Hospital, New Orleans, that: "Truly fortunate are they who keep aloof from the stethoscope of the ausculator." We now have clearer conceptions of the prognostic significance, potentialities, and the interpretation of the various findings. We can differentiate definitely the grave from the insignificant lesions; we know better the possible complications and the usual progress of the various lesions; and the limitations to be placed upon an afflicted individual are more rationally understood and more clearly defined. With good psychologic approach we can reassuringly inform a patient of his condition without alarming him unduly. Then we can direct his mode of living so as to add years of productivity and comfort to his life.

HEART DISEASE.

It behooves us to get clearly in our own minds what we mean by the general term, "heart disease," and such other terms as we are prone to use. It seems to me advisable to limit the diagnosis of "heart disease" to such cases as present evidence from which we may fairly accurately infer

*Read before the Fifth District Medical Society at Monroe, La. December 13, 1927.

†From the Department of Medicine, Tulane University School of Medicine.

that the heart muscle, through the effects of infection, strain, undernutrition or developmental disturbance, has been so damaged that it accomplishes its task only at the expense or sacrifice of more or less of its reserve. The state of the heart muscle is such that the strain of undue exertion, the toxic effects of intercurrent infection or the progressive nutritional disturbances of aging sooner or later precipitate the signs of myocardial insufficiency: congestive failure, edema, or cardiac pain.

RELIABLE CRITERIA.

The vast majority of individuals with heart disease present, as has been pointed out, one or more of the group of positive signs, while individuals with cardiac neuroses, functional or referred heart symptoms never present any one of these pathognomonic findings. The trustworthy evidences are such that the presence of any one of the signs is sufficient basis for the diagnosis of heart disease, and what is of equal importance, the absence of all of the signs is practically proof positive of the absence of organic, actual or potential myocardial changes or congenital malformations which will sooner or later produce symptoms.

We may consider the ten reliable criteria perhaps most logically in the order in which we would encounter them in the systematic routine physical examination. Inspection might reveal: (1) Significant engorgement of the neck veins; (2) visible displacement of the cardiac apex impulse; (3) abnormal pulsation of aneurysm. Palpation might, besides verifying the above, add: (4) Definite thrills, friction fremitus, and conspicuous shocks; (5) absolute irregularity or alternation of the rhythm and excessively low or high rate of the apex baet and the pulse; (6) sclerosis and tortuosity of all the peripheral vessels. Percussion, besides corroborating the displacement of the apex, might reveal its important relationship; (7) extremely large abnormal and distorted areas of great vessel and cardiac dullness. Auscultation, besides verifying and clarifying the rhythm and rate disturbances and suggestive evidence of abnormal aortic sclerosis, might furnish such absolute signs as: (8) apical and basal diastolic murmurs, continuous humming or pericardial friction sounds; (9) persistent hypertension revealed by repeated blood pressure estimations with the patient at rest and, (10) laboratory evidence of chronic nephritis. All these are considered reliable criteria of conditions which are invariably accompanied by heart disease.

DISCUSSION OF EACH OF THE PATHOGNOMONIC SIGNS.

While any one of the positive signs is sufficient basis for the diagnosis of heart disease, nevertheless, it is not at all unusual to have several of the cardinal signs present in each case.

1. Significant engorgement of the neck veins means persistent overdistention and prominence of the jugulars with the patient in an upright position, thus indicating a greatly increased venous pressure level far above that of the right cardiac atrium or auricle. Generalized stasis and back pressure of an embarrassed, overloaded heart with a definite myocardial insufficiency and a failing of the propulsive power is indicated. The presence of mediastinal tumors obliterating the great vessels by pressure must, of course, be ruled out as must, also, temporarily increased intrathoracic and intra-abdominal pressure from abnormal positions of the diaphragm and increased thoracic and abdominal muscle tension.

2. Visible displacement of the cardiac apex impulse is generally conceded to be the most definite and almost infallible clinical or bedside sign of enlargement of the heart. The outermost part of the circumscribed apex impulse is the best criterion of the size of the heart. This part corresponds to the left border of the normal or moderately enlarged heart, while in very large hearts, it does not quite indicate the full extent of the left border to the left.

An extension of the apex impulse beyond the midclavicular line or more than 15 centimeters to the left of the midsternal line

in the fourth, fifth, or better still, the sixth intercostal space is generally accepted evidence of cardiac enlargement. Cardiac enlargement is accepted as positive evidence of heart disease inasmuch as either persistent dilatation or hypertrophy are incompatible with normal function and integrity of the myocardium. With either, the circulation of the heart itself is embarrassed. Causes of displacement of the heart, such as, contralateral fluid or pneumothorax or homolateral collapse, must of course be absent. Besides the physical signs, fluoroscopic study, orthodiagrams, and teleoroentgenograms yield absolutely conclusive evidence and exact measurements of the cardiac shadow of the enlarged heart, and thus denote heart disease.

3. Abnormal pulsations of aneurysms are fairly commonly seen in the South, and one may infer safely from the presence of the manifestation of vascular syphilis that the patient more than likely has further aortic and coronary narrowing lesions and consequently heart disease. Even arteriovenous aneurysms of traumatic origin, if left unrepaired, will eventually, because of the accompanying low diastolic blood pressure result in nutritional disturbances in the myocardium, hypertrophy, and failure.

4. Definite thrills and conspicuous shocks, distinct "purrs," "taps," and "rebounds" transmitted to the palpating hands are palpable counterparts of murmurs and abnormal sounds. A diastolic thrill over the apex is produced by the same mechanism that gives rise to the diastolic rumble of mitral stenosis, while over the base the sign indicates aortic regurgitation, patent ductus arteriosus, and, if systolic in time, aortic stenosis, pulmonary stenosis or interventricular septal defect or aneurysm, as likely causes. Thus, it is evident that an unmistakable thrill is a dependable sign in itself, but it is always accompanied by other corroborating and significant findings. Vibration of the chest wall from an overactive heart is, of course, to be differentiated.

5. Absolutely irregular rhythm, alternation, excessive bradycardia, and tachycardia indicated in the apex beat or the pulse connote such significant mechanism disturbances as auricular fibrillation, flutter, heart block, and alternans. These disturbances, when persistent, are always initiated by and accompanied by serious myocardial damage. Clinical means are sufficient to establish fairly accurately these conditions with the possible exception of flutter and some cases of block. Electrocardiographic tracings establish absolutely the exact nature of rhythm disturbances. Blood pressure studies and pulse tracings, noting the alternating higher and lower levels, establish and graphically record this evidence of heart disease.

6. Sclerosis and tortuosity of all of the peripheral vessels, that is generalized arteriosclerosis, is rarely present in the accessible vessels only. The aortic root and the orifices of the coronaries are, as a rule, also involved, and the coronaries may even frequently be pathologic in the presence of apparently normal peripheral vessels. The nutritional disturbances consequent upon the impaired coronary circulation impair the structure as well as the function of the myocardium.

7. Extremely large and abnormally distorted areas of great retromanubrial and precordial dullness usually merely corroborate previously elicited signs as visible and palpable abnormal pulsations and displaced apex impulses, thus substantiating the diagnosis of aneurysm or enlargement of the heart or pericardial effusion. These first two conditions, as related above, are evidences of heart disease. Pericardial effusion is the result usually of an infection, and the myocardium is more or less affected simultaneously with the disappearance of the effusion. Adhesions persist and continue to embarrass the heart increasingly as time goes on.

8. Apical and basal diastolic murmurs, continuous hums or pericardial friction sounds indicate organic cardiac damage. The rumbling apical diastolic mumur

means mitral stenosis which is the result of the scarring of the valve leaflets following infection of the valves. Rheumatic fever or streptococcic infection we know, because of the presence of Aschoff Geipel or Bracht Wachter bodies, damage the myocardium at the time of the acute valvulitis and at each exascerbation thereafter.

The basal diastolic murmur is usually somewhat musical and is either due to rheumatic, streptococcic, or syphilitic aortic regurgitation. All of these infections, it has been pointed out, damage directly the heart muscle. At the same time the mechanics of the valve lesion add much work and the lowering of the diastolic and mean blood pressures further accentuate the vicious circle. The continuous humming murmur invariably diagnosticates a congenital lesion; such as, patent ductus arteriosus or interauricular or ventricular septum defect or arteriovenous aneurysm, any one of which lesions always puts the heart muscle to such a persistent strain that myocardial damage ensues. Pericardial friction indicates pericarditis, which, as pointed out above, usually also damages the heart muscle.

9. Persistent hypertension, when not associated with the menopause, presents as part and parcel of the picture, a widespread arteriolar change. The almost inevitable or accompanying coronary vascular changes together with the increased burden that the heart assumes in maintaining hypertension eventually results in cardiac hypertrophy and dilatation with myocardial changes. Consistent high blood pressure readings of 30 mm. or more of mercury above the accepted average normal for the patient's age and sex are, therefore, criteria upon which we may diagnose heart disease.

10. Chronic nephritis, through the effects of blood pressure, vascular and hematologic changes or through the circulation of toxic, abnormally split, or retained protein substances, invariably damages the heart muscle and produces great cardiac enlargement. It is possibly true that the myocardial changes are not always secondary, but were initiated by the same toxins of the same infection that produced the acute renal irritation and damage.

THE HISTORY.

The anamnesis, when carefully deeloped chronologically and symptomatically, is a most important part of the clinical study of a patient with heart disease. The etiological factor and the functional state or cardiac reserve are most clearly defined in a good history. Nevertheless, with one exception, a diagnosis of heart disease cannot be made from the history alone. This is true primarily because the principal symptoms of heart disease may be produced by other conditions. For instance, dyspnea and cyanosis may be the result of cerebral, pulmonary, or blood disturbances, and edema likewise may be of renal or vascular origin, while palpitation is common in thyrotoxicosis and constitutionally nervous individuals. The whole symptomatology of organic myocardial insufficiency is complained of by the cardiac neurotic and the effort syndrome or neurocirculatory asthenia case, but none of these present the pathognomic physical signs detailed above.

The rare exception to the rather dogmatic rules prescribed is the rare case presenting true paroxysmal cardiac pain, angina pectoris, or early coronary sclerosis or aortitis and none of the positive criteria enumerated. In this rare instance the characteristic history is a sound basis for the diagnosis of heart disease. Increased retromanubrial dullness and a systolic murmur, abnormally accentuated aortic second sounds in the absence of hypertension are corroborative signs from which we may infer, as Allbutt pointed out, the presence of possibly insignificant changes in the aortic root and the coronary orifices. Blood pressure rises during the attack and electrocardiographic abnormalities lend weight to the diagnosis from the symptomatology.

SUMMARY.

The importance of handling patients with heart disease psychologically is reiterated.

The necessity for a clear conception of what is and what is not heart disease is stressed.

The ten groups of physical signs upon the basis of any one of which and in the absence of all of which one is justified in diagnosing the presence or what is equally important, the absence of heart disease.

The relative significance of the clinical history is briefly discussed.

CORRESPONDENCE.

October 25, 1928.

Dr. John H. Musser, Editor-in-Chief, New Orleans Medical and Surgical Journal, 1551 Canal Street, New Orleans, La.

Dear Doctor Musser:

In accordance with resolutions passed by the Orleans Parish Medical Society, October 22, I am hereby transmitting to you a statement of facts with regard to chiropractic support by the New Orleans Daily States which I presented to the Society as a matter of record:

Some four weeks ago a full column editoral appeared in the middle of the editorial page of the New Orleans Daily States urging all Orleans to join with Dr. Walter Fife and Dr. V. A. Nichols in observance of the "Kindness to Animals Week," which incidentally is sponsored by the Humane Society and not the Anti-Vivisection Society. This editorial went on further to point out that these men, being President and Secretary of the Anti-Vivisection Society respectively, were trying their best to make Orleanians be kind to animals. The next day on the first page of the Daily States appeared an article describing the death of a child from rabies, who had been treated at Charity Hospital for a dog bite two months previously, and intimating that thorough investigation of the Pasteur Department of Charity Hospital should be conducted.

In view of the fact that my boy was also bitten at the same time these other children were, and as I had been deeply moved by the death of this little fellow who was a neighbor of mine, and the majority of the children having been bitten in my own back yard, I proceeded to write Colonel Ewing a personal letter requesting him to publish same in his forum "For Fair Play." In this letter I offered to bet him a first mortgage note for $5,000.00 on my property against his promise never to mention in commendation thereof the name of another chiropractor on his editorial page, and further to initiate a newspaper campaign of education relative to the merits of preventive inoculation against rabies in dogs, which wager was predicated on a test experiment upon six dogs which were to be inoculated with the virus of street rabies by Dr. W. H. Seemann who was also to keep the dogs under his observation. Three of the dogs were to be treated by any one or more chiropractors that Colonel Ewing should select, and the other three dogs were to be treated by the Director of the Pasteur Institute of Charity Hospital; the winning of the wager to be predicated on the results obtained in the dogs, I wagering that two out of three of the dogs treated with Pasteur treatment would survive a reasonable test period, and, further, that at least two out of three of the dogs treated by chiropractic would die during this same period.

It was further pointed out to Colonel Ewing that there was no law against employing free chiropractic upon dogs that the writer knew of; and also that inasmuch as even he recognized the prevalence of Texas cattle tick fever among our dairy cattle, that some chiropractic commission be requested to submit plans to Governor Long for eradicating same.

To date, now a month, this letter has not been answered nor published. I submit these facts to the Orleans Parish Medical Society believing that organized medicine should be made aware of the refusal of Colonel Ewing to accept a fair wager and with the hope that possibly they may discourage the blatant advertising of chiropractic by Colonel Ewing in the Daily States. With a fuller knowledge of the underhand and subterranean methods employed by chiropractors it may be possible in some measure to eradicate the source of the flood of vicious anti-vivisection and chiropractic bills which continually have to be met by solid cash outlays from the treasury of the Louisiana State Medical Society or the Orleans Parish Medical Society, to say nothing of the time spent by members of our organization in numerous trips to Baton Rouge.

A letter addressed and mailed at the same time to Colonel Ewing asking for the address of the Secretary of the Anti-Vivisection Society, "Dr. V. A. Nichols," was answered promptly by the Editor of the Daily States, Mr. J. Walker Ross, stating that the name should be "Professor V. A. Nichols," with offices in the Godchaux Building. A "personal" letter to "Professor" Nichols outlining the love of the writer for children and animals and requesting information relative to qualifications and possibilities of securing membership in this Society has also remained unanswered.

Yours very truly,

F. M. JOHNS, M. D.

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RABIES, THE PUBLIC AND THE PROFESSION.

Elsewhere in the Journal will be found a communication from Dr. Foster Johns relative to his endeavors towards mitigating some of the undoubted harm done by certain publications in one of the New Orleans daily papers. This letter deserves editorial comment. From the facts as stated it seems that the chiropractors first are endeavoring to further their aims under the camouflage of a national society interested in the prevention of cruelty to animals, and secondly that a large and prominent newspaper is apparently willing to lend assistance to this deception. The first of these statements needs no explaining to the medical profession. Under the cloak of some charitable organization or another, chiropractic mechanics frequently have endeavored to defeat the efforts of medical men to protect the public. They have done this before and it will be done again. That a metropolitan newspaper, run by men of intelligence and integrity should help in such deception by advertising the chiropractor, giving him what he is after, free advertisement, is beyond comprehension. The only thing that can be said is that they, the editors, do not understand the pernicious evil inherent in any organization which hopes to defeat public health measures.

In this connection it might be said that rabies is rife among the dogs of New Orleans. It is the stray, unwatched animal that is potentially dangerous to children particularly, but to adults as well. It is this animal that the chiropractor would protect. As an example of unthinking interference we would say that recently in New Orleans considerable notoriety was attained by the action of an individual who objected physically and pugnaciously to the methods employed by the official dog catcher in collecting stray animals to be impounded. If this man had ever seen a child die in the horrible agonies of hydrophobia never, we are sure, would he object to any measures to get rid of one of the most frightful of diseases, bred in the curs of the alleys. He would utter words of thanks that the authorities are attempting to control the source of the disease. He, the general public and the press, would bless the name of Pasteur, the greatest of Frenchmen who made possible a treatment which will prevent, it is true in not every case, but in by far the great majority of cases, the development of one of the most agonizingly horrible and frightful diseases, rabies.

LONGER LIFE WEEK.

Again this year the Committee of the Orleans Parish Medical Society has designated the week beginning December 3 as "Longer Life Week." Last year this annual program was inaugurated with much success, and at that time the Journal carried several articles emphasizing the importance of such a movement and the benefit to be gained from periodic health examinations.

The committee has again arranged to bring this important subject before the community by advertisement and public talks before most of the organizations, civic bodies and schools of the city.

Enough has been said regarding the importance of the movement. The profession should co-operate in every respect to further the activities of the Society along this line. Only by continuous effort will the community realize the benefits to be derived.

JANE GREY ROGERS: AN APPRECIATION.

The many readers of the Journal who are graduates of the Medical School of Tulane University will be saddened to learn of the death of Miss Jane Grey Rogers, which occurred after a long and lingering illness at her home in New Orleans on Saturday, October 20th, 1928.

For over twenty years she presided over the Library of the Medical School and during this period she not only discharged her duties as librarian with distinguished ability and fidelity, but entered into her functions with a rare and altruistic conception of her service; not merely as a dispenser of knowledge and a mentor in the use of books, but as the friend of the students, solicitously concerned in every movement and enterprise that tended to their scholastic uplift and to their personal and collective betterment.

To many of the Alumni the realization of this "dread finale" will bring the grief and deep regret of parting with one of the strongest links in the chain of affection that bound them to their Alma Mater.

It is due to her whole-souled devotion to her task and to her sympathy and ever ready co-operation with the students in their work, that the reading rooms of the Library became their favorite and most frequented resort. In this way she was a powerful factor in developing in the student body a studious habit and interest in medical literature such as had never been known before her day.

But apart from her enduring and far reaching service as Librarian of the Medical School the passing of Miss Rogers will be lamented as a great loss by a wide circle of friends in and out of the profession, who appreciated and admired her rare intellectual gifts and superior literary attainments. Endowed with a brilliant mind, well trained by constant application to the fundamentals of the language and to the fountain sources of the literature, and, with a spontaneous ability for literary expression, she wrote prose or verse with equal facility. Her collection of published and unpublished verse is, in itself, a lyrical anthology of a high order in which she dis-

plays not only a complete mastery of English prosody but a creative faculty, a versatility in form and a fertility of imagination, that stands high above the level of that poetic mediocrity that flourishes so luxuriantly in our current literature. Over modest and unpretentious, she never obtruded her talents or erudition. But no one could be long in contact with her gifted mind without quickly recognizing her intellectuality and the great wealth of cultural lore that was stored within.

A number of her contributions on medico-literary subjects have appeared at different times in the editorial columns of this journal, but her tendency to self-effacement has caused the authorship to remain, in most instances, undisclosed.

The New Orleans Medical and Surgical Journal counts among its editors and collaborators, past and present, many who cherish the memory of this noble woman for her inspiring friendship, her helpfulness, her unfailing sympathy and encouragement during their most anxious and struggling student days. She gave unstintingly and unselfishly of her best with no thought of material consideration or of worldly reward. Her whole life seemed to have been inspired by the dictates of a heart that harkened to the spiritual admonition: "Freely ye have received, freely give." To the great host of the Alumni who are dispersed throughout the country and in foreign lands, and who remember the gentle Librarian at Tulane as their ever willing helper and friend, the passing of Jane Grey Rogers is only a transition from the stage of material human realties to that of the intangible but still living world of blessed memories.

DISTRIBUTION AND EXTENSION OF TUBERCULOSIS.—Gerald B. Webb, Colorado Springs, says that infection by the human tubercle bacillus is usually by way of the air. Infection by the bovine bacillus is by ingestion. In rare cases the tubercle bacillus may enter the body through the skin, usually through an abrasion. The mucous membrane is the first line of defense against the tubercle bacillus and penetration of intact membrane by bacteria is probably rare, though this may not be true in the lung. Primary tuberculosis of the nasal mucous membrane is almost unknown in spite of the frequency with which the tubercle bacillus can be found in the nasal passages of those exposed to tuberculosis patients. The lymph nodes constitute the second line of defense, and while many kinds of bacteria which have succeeded in passing the first line are easily destroyed by the lymph nodes, it is probable that they cannot overcome even a moderate number of tubercle bacilli which may be brought to them. It is in the lymph nodes that the first manifestations of tubeculosis are apt to be found. The mucous membranes may be penetrated by the tubercle bacillus without local lesions arising, and this is frequently the case in children when tuberculosis of various lymphatic chains is seen and no lesion of any mucous membrane detected. Meningitis is part of a generalized tuberculosis and more commonly associated with thoracic disease than with abdominal. It is a fairly frequent terminal complication of male genital tuberculosis especially after surgical intervention. Bone and joint tuberculosis may originate from either thoracic or abdominal disease. The blood stream seems the only probable route of metastasis here. Tubercle bacilli may penetrate mucous surfaces such as those of the eye, nose, pharynx and bronchi without producing local lesions, and, wherever the portal of entrance may be, tubercle of the tracheobronchial lymph nodes will result. It may occasionally happen that bovine tuberculosis attacks the mesenteric lmyph nodes while the tracheobronchial nodes remain normal; but it is doubtful whether choroid, tonsillar, lingual, pharyngeal or laryngeal tuberculosis ever takes place without concomitant infection of the tracheobronchial nodes. Such lesions, however, may occur in the absence of manifest pulmonary tuberculosis. It is known that infection has access to all organs and tissues by way of the blood stream. It has been conclusively proved that "bacillemia" without acute general miliary tuberculosis occurs in a considerable percentage of cases of pulmonary tuberculosis, and there is a strong presumption, from the presence of tubercles in liver and spleen, that it occurs at some time in all, or nearly all. It has been shown that tuberculous enteritis can be produced experimentally by actual inoculation much more readily than by simple infection. It therefore seems reasonable to suppose that tuberculous enteritis and laryngitis do have a hematogenous origin, at least in many cases.—Jour, A. M. A., 91: 769-772, 1928.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL STAFF—ORLEANS PARISH MEDICAL SOCIETY. JOINT MEETING.

A joint meeting of the Orleans Parish Medical Society with the Charity Hospital Staff was held Monday, November 12, 1928, at 8 p. m., in the Miles Amphitheatre, Charity Hospital, Dr. J. Birney Guthrie presiding.

Dr. G. C. Anderson presented a case of left brachial plexus palsy in a young colored male following a fracture of the left clavicle. An open reduction was done with wiring of the fragment. At this operation it was determined that there was no damage to the plexus roots, inasmuch as they responded to electrical stimulation. The paralysis was thought therefore to be due to pressure upon the plexus. The arm only was involved, there being no involvement of the shoulder muscles. Since operation motion has gradually been returning to the affected limb.

The second case presented was that of a contrecoup cerebral hemorrhage produced by a blow on the left side of the head which rendered the patient unconscious. There was a fracture of the skull in the parieto-occipital region with bleeding from the left eye, and complete paralysis of the left side of the body. A subtemporal decompression and bone flap operation on the right side failed to show any hemorrhage. The patient died and post-mortem examinations demonstrated a cerebral hemorrhage in the right hemisphere.

Dr. P. H. Jones presented a very interesting case for differential diagnosis. The patient, a white male, had been ill for the past 9 months with fever, chills and weakness. The fever came at irregular intervals lasting 2 to 3 weeks followed by an afebrile period of about 10 days. During the febrile period the temperature went to as high as 101° to 102° and chills occurred sometimes. The positive physical findings were an anemia, tachycardia, enlarged spleen, moderate size liver, and questionable ascites. All the laboratory tests had been negative. The probable diagnoses of tuberculosis, malaria, typhoid fever, Hodgkin's disease, Banti's disease, and Malta fever were considered and discussed. By a process of elimination the diagnosis of Malta or undulant fever had been made, though blood culture was negative and also agglutination reactions for micrococcus melitensis.

Dr. Johns discussed the disease, mentioning the facts that the disease occurred in cattle as well as goats and was endemic in Texas among other states.

Dr. Alsobrook presented a case of tubal abortion in which the symptoms and signs had been unusual. A diagnosis of multiple uterine fibroids with pelvic abscess had been made. Aspiration of the fluctuating pelvic mass on the right side showed blood. An exploratory laparotomy was done and a large blood clot found in that side. A right salpingo-oophorectomy was performed, a large fimbriated extremity of the tube being noted. The diagnosis of tubal abortion was confirmed by pathological examination.

Dr. G. Mayer presented a case which had had a Cesarian section performed for a markedly contracted pelvis. There was marked deformity of the lower extremities, congenital, and a flattened assymetrical pelvis. Roentgenograms of the pelvis were shown. The patient had been given the test of labor for 18 hours before the low Cesarian section was done.

Dr. Ficklen spoke on the indications for Cesarian section, and the importance of always allowing the patient to have the test of labor.

Dr. I. L. Robbins presented a colored male who had had weakness, palpitation, and swollen ankles at night for 4 months. Several hours following an Ewald meal with removal of the gastric contents the patient had a true hematemesis. The gastric analysis showed free HCL 65, total acidity 85, with occult blood. Gastro-intestinal roentgenograms showed no organic pathology. There was hypertension, dilatation of the ascending aorta, and a slightly enlarged heart. The blood pressure fell progressively and the patient showed no further discomfort. The case was regarded as one of hypertension causing this gastric hemorrhage.

Dr. J. H. Smith mentioned a similar case which had occurred under his observation. He considered the cardiac condition the cause of the gastric hemorrhage in his case, rather than organic pathology, and agreed with Dr. Robbin's impression of his own case.

WILLARD R. WIRTH, M. D.

TRANSACTIONS OF THE CHARITY HOSPITAL.

SURGICAL SECTION.

The October meeting of the section was devoted entirely to an interesting presentation on spinal anesthesia by Dr. Earl Garside. In a brief summary Dr. Garside traced the history of this form of anesthesia to the present day. The various objectionable features to spinal anethesin were

considered and the reason for their existence given. Besides, it was pointed out that the various drugs used in the past were found to vary in toxicity so that the danger was increased according to the drug used. It was pointed out that novocain was the least toxic, and then came aposthesin, butyn and stovain—in the order named.

The diffusion that takes place when novocain is injected into the spinal canal was explained to be the most objectionable feature. Dr. Garside pointed out that Dr. Geo. P. Pitkin of New Jersey has been able to overcome this by introducing a new drug called spinocain; and which he explained was "a solution of novocain in a special starch paste and alcohol solvent, each cubic centimeter containing 100 mg. of novocain."

Because the specific gravity of this solution is lighter than that of spinal fluid (1.006 for spinocain and 1.074 for spinal fluid) it will float on the latter; and is thereby controlable. The lightness necessitates the use of the Trendelenburg position. This permits the solution to float toward the sacrum and away from the brain. The height of anesthesia is regulated by the amount of spinal fluid withdrawn in the syringe and reinjected, thus permitting expansion, but not diffusion. Accordingly, a spinal sacral bloch is obtained by injecting the spinocain solution as it is removed from the ampule and without aspiration of spinal fluid. The patient is placed in a fifteen degree Trendelenburg position. Anesthesia of the lower extremities and extending to the iliac crests can be obtained by aspiration and reinjection of 4 c. c. of fluid. Umbilical anesthesia by aspiration of 6 c. c.; and anesthesia to the costal margin by aspiration of 8 c. c. of fluid.

Dr. Garside explained, also, that the solution used to induce local analgesia over the points through which the needle is to be introduced into the spinal canal, contains 50 mg. of ephedrin hydrochloride; which is found to last longer than suprarenin.

Finally, he explained that Dr. Pitkin has prepared another similar solution, but with a higher specific gravity than spinal fluid; and which will permit the use of the reverse Trendelenburg position.

Dr. Garside showed, by demonstration, how a pure novocain solution diffused through a saline solution of spinal fluid specific gravity; how the light spinocain floated on this same solution; and how heavy spinocain sank to the bottom of this solution.

In the discussion which followed, Dr. Urban Maes pointed out that "it would be well to state the average duration of anesthesia with spinocain." Dr. Garside explained that the length of time averaged two hours; and also went into some details explaining how the various regions became anesthetized—that is—the order in which this takes place. FRANK L. LORIA, M. D.

STAFF MEETING VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL.

October 10, 1928.

Special Case Reports.

Osteomyelitis of the Cranium—Dr. A. Street.

A boy of fourteen years, admitted on August 31, 1928, gave the history of having been struck on the left eye by the fist of another boy on July 2, 1928. As a result of this blow, he fell and struck the back of his head on the floor. There was headache and aching over the eyes from the time of accident. The region around the eye was swollen, and ten days later he had fever and a convulsion. He had been treated at another hospital for frontal sinus disease, but did not improve. Later an abscess formed high on the forehead and much pus was evacuated. There was considerable improvement, but the swelling did not subside and the infection over the abscess did not heal.

Physical Examination: The patient was weak and pale, but well nourished. Pulse 82, respiration 20, temperature 99 2/5°. There was a suppurating wound high in the midline over the forehead and another area of suppuration posterior to this. There was no edema of the orbital region. Cervical lymph nodes were barely palpable and not tender. The general physical examination, including roentgenogram of the chest, showed nothing additional. The right nostril showed no evidence of disease, but the left contained a purulent exudate from the left frontal sinus. A spinal puncture was done previous to this with negative findings and was repeated at this time.

The blood examination shows: Hemoglobin, 77%; erythrocytes, 3,176,000; leukocytes, 9,700; differential count: small mononuclears, 41%; large mononclears, 2%; neutrophiles, 55%; eosinophils, 2%; blood Wassermann test and Kahn test were negative. Tissue examination from the wounds showed nothing suggestive of tuberculosis.

Roentgenograms of the cranium showed extensive destruction of bone from the region of the frontal sinuses back to and including part of the occipital bone. Extensive areas of the paietal bones were included, but the temporal bones were apparently uninvolved. There appeared to be a tact in the frontal bone leading into the left frontal sinus.

Treatment: The radical type of treatment as advised by McKenzie seemed out of the question on account of the extent of bone disease. In an attempt to control the spread of disease into the flat cranial bones alongitudinal incision was made from a point on the forehead about one-half inch below the hair line backward along the sagital suture to a point which exposed normal occipital bone.

The flaps on each side were then freed until apparently normal bone was reached. No attempt was made to dislodge the necrotic portion of bone. Strips of gauze packing soaked in vaseline were placed against the surface of the bone and the wound left open. The packing was not disturbed for one week. The patient was quite weak for three or four days following this operation, but since that time has gradually gained in weight and strength and the temperature has subsided.

On removal of the vaseline gauze packing, numerous large and small sequestra were easily picked out of the wound and some sequestra have been removed at each dressing until recently, when only granulation tissue is evident and apparently no further sequestra forming.

The next step in treatment will probably be exposure of the frontal sinuses by external incision and removal of the anterior walls and of such portions of the frontal bone as may seem necessary.

DISCUSSION

Fortunately the above described condition is not common. However, this is the fourth case that has been treated in this hospital. One followed a prolonged fever that had been diagnosed as typhoid; one followed chronic mastoiditis; one in a baby following chronic otitis media; and the above case which seemed to be the result of trauma and frontal sinus disease. Of these cases the first three were well advanced when admitted. Two died of extension of infection into the brain, and the baby died with septicemic multiple metastatic areas of suppuration.

On looking up this subject in the usual text books and systems of surgery I find rather incomplete information. Tuberculosis or syphilis was evidently formerly held to be the cause of the majority of such cases. Although some of the cases unquestionably are caused by tuberculosis and by syphilis, the records of reported cases do not indicate that anything like a majority of cases result from such causes.

For the convenience of others who may find it necessary to review this subject, references are submitted.

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Lillie, H. L.: Ann. Otol., Rhin., and Laryn., June, 1925.
Hastings, Hill: Arch. Oto., Laryng., 6:559, 1927.
Boyd-Snell, Harry: Jour. A. M. A., 8:803, 1928.

DEFECTIVE GAS-HEATING APPLIANCES CONSTITUTE SERIOUS HEALTH HAZARD.—With cold weather approaching, a warning of danger to life or at least serious discomfort, from breathing the fumes produced by improperly adjusted or poorly constructed heating appliances, is sounded by the United States Bureau of Mines, Department of Commerce. Householders will be using more gas and simultaneously will decrease ventilation by closing up their homes in order to maintain comfortable temperatures. Many persons suffer discomfort and ill-health in the form of lassitude languor, headache, and nausea without suspecting the cause to be carbon monoxide arising from the improper functioning or improper use of their gas appliances. Cases of mild to moderate forms of carbon monoxide poisoning are far more numerous than serious or fatal cases and are usually forerunners of the serious type.—Bull. Department of Commerce, October 23, 1928.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

Besides the regular meeting of the Board of Directors the Society has held one Joint Clinical Meeting with the Charity Hospital Staff and one regular Scientific Meeting.

At the Joint Clinical Meeting interesting cases were presented by Drs. H. B. Alsobrook, Gilbert C. Anderson, P. H. Jones, Jr., G. A. Mayer and I. L. Robbins.

At the regular Scientific Meeting the follow program was presented:

The Diagnosis of Myocardial Insufficiency: Results obtained with a Modification of the Dwight-Frost Cardio Respiratory Test.

By.....Dr. Allan Eustis

Discussed by Drs. E. L. Faust and Upton Giles.

Report of one thousand cases of Hemorrhoids treated by Office Methods.

By.....Dr. J. W. Warren.

Discussed by Dr. W. A. Love.

Fractures and Dislocations of the Cervical Vertebra.

By.....Dr. D. H. Theodore Simon

Discussed by Dr. Paul A. McIlhenny.

The Delegates and Alternates to the Louisiana State Medical Society elected at the regular meeting are:

Delegates: Drs. S. M. Blackshear, H. B. Gessner, F. J. Chalaron, L. L. Cazenavette, H. W. Kostmayer, E. Denegre Martin, E. L. Irwin, P. Graffagnino, P. A. McIlhenny, B. A. Ledbetter, and M. J. Lyons.

Alternates: Drs. F. M. Johns, H. Theodore Simon, J. Birney Guthrie, J. F. Dicks, M. J. Gelpi, J. T. O'Farrall, L. A. Fortier, C. J. Bloom, W. J. Durel, A. Jacobs, and M. Bradburn.

The regular election of Officers will take place Saturday, December 8, at the offices of the Society, 1551 Canal Street. The voting to be between the hours of 10:00 A. M. and 12:00 noon; 2:00 and 5:00 P. M. and 7:00 and 8:30 P. M.

The Orator for the coming Stanford E. Chaille Memorial Oration to be held Tuesday, December 4, will be Dr. Carl J. Wiggers, Professor of Physiology of the School of Medicine, Western Reserve University of Cleveland, Ohio. The title of his paper will be "The Value and Limitations of Laboratory Methods in Clinical Investigation of Cardio-vascular Diseases."

Longer Life Week will be held during the week of December 3-8. The Chairman of the committee of arrangements for this week is Dr. Leopold Mitchell. During this week the value of periodic health examinations will be broadcast through lectures before schools, cooperative clubs, radio, luncheon clubs. Posters will be placed in the department stores, hospitals and street cars.

The members will note that bills for dues contain a special assessment of $1.00 which was levied by the Louisiana State Medical Society to defray the expenses in Baton Rouge of the fighting and defeating the proposed chiropractic laws. Those who have not paid same will kindly do so at once.

The first quarter insurance for the year 1929 will be due on December 5, 1928. It is requested that all policy holders send in this quarterly amount of $9.93 or if they decide to pay for the year the premium will be $39.72.

Members who have not yet sent in their photographs for the coming edition of the history of the Orleans Parish Medical Society to be edited by Dr. A. E. Fossier are requested to do so at once as the manuscript is ready to be turned over to the publishers.

The following doctors have been elected to membership:

ACTIVE MEMBERS: Dr. Bernard Hochfelder and Dr. Seaborn J. Lewis.

INTERNE MEMBERS: Dr. Herbert E. Cannon and Dr. Jack E. Strange.

TREASURER'S REPORT.

Actual Book Balance, 9/30/28	$1,685.05
Receipts during October	$1,669.14
	$3,354.19
Expenditures	$3,271.81
Book Balance 10/31/28	$ 82.38

LIBRARIAN'S REPORT.

One hundred three books have been added to the Library during October. Of these 81 books were received by gift and 22 were from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is appended herewith.

Gifts of Journals, books and reprints have been received from the Cleveland Academy of Medicine Library, Jackson County Medical Society (Kansas City), Emory University and Tulane University.

Miss Marshall while on vacation in September attended the meeting of the Medical Library Association at the New York Academy of Medicine. A full report of this meeting will be given at a later date. The sessions were largely attended and were most instructive and inspirational.

NEW BOOKS.

Mendel—Psychiatry. 1920.
American College of Surgeons—15th yearbook. 1928.
Rockefeller Foundation—Methods and Problems of Medical Education. 1928, v. 10.
Royal Society of Tropical Medicine and Hygiene. Yearbook. 1928.
College of Physicians of Philadelphia Transactions. 1927.
Henderson—Gilbertus Anglicus. 1928.
Evans—Recent Advances in Physiology. 1928.
National Research Council—Bulletin. July, 1928.
Carter—Bacteriology for Nurses. 1928.
Alvarez—Mechanics of the Digestive Tract. 1928.
Kanner—Folklore of the Teeth. 1928.
Audle—Calcium Therapy. 1928.
Wyard—Handbook of Diseases of the Stomach. 1927.
Wilson—Physiological Chemistry. 1928.
John—Diabetic Manual for Patients. 1928.
Barnhill—Nose, Throat and Ear. 1928.
Juilly—Practical Surgery of the Abdomen. 2v. 1928.
Young—Urological Roentgenology. 1928.
Gradwohl—Blood and Urine Chemistry. 1928.
Eisendrath—Textbook of Urology. 1928.
Eddy—Nutrition. 1928.
LaVake—Clinical Gynecology and Obstetrics. 1928.
Pearson—Recent Advances in Diseases of Children 1928.
Bainton—Classification and Diagnosis of Heart Disease. 1928.
Fitch—New Pocket Medical Formulary. 1928.

H. THEODORE SIMON, M. D.,
Secretary.

THE THIRD CHAILLE LECTURE.

The Third Chaillé Lecture will be delivered December 4, at 8:00 p. m., by Dr. C. J. Wiggers, Western Reserve University, who will speak upon "The Value and Limitations of Laboratory Methods in Clinical Investigation of Cardiovascular Diseases." The Society is indeed fortunate to have a master physician deliver this lecture, adding his name to the two distinguished names of the men who have preceded him, Drs. Allen Whipple and M. G. Seelig.

Dr. Wiggers is one of the outstanding men of medical science in this country. He was born in Iowa in 1883, and graduated from the University of Michigan Medical School in 1906. In 1911 he was appointed Assistant Professor of Physiology of Cornell University Medical School, and since 1918 has been Professor of Physiology of Western Reserve University Medical School. Dr. Wiggers, as a physiologist, has been interested primarily in the development and adaptations of optical methods of registration to a study of normal and abnormal conditions of the circulation. As a result of special studies in the field of work that he has cultivated so successfully, some 98 articles have appeared in the more prominent journals of physiology and medicine published in this country. Dr. Wiggers is also the author of three books, a "Brief Text of Physiology", "Circulation in Health and Disease", "Pressure Pulses in the Cardiovascular System," while a fourth book, "The Principles and Practice of Electrocardiography" at present time is in press. The Chaillé lecturer for 1928 is a member of many scientific societies and organizations.

The medical profession in the City of New Orleans and their friends who are interested in medical subjects are cordially invited to hear this lecture. Because the lecture is given under the auspices of the Orleans Parish Medical Society must not be felt that only members of the Parish Society are welcome. It is earnestly hoped that many of the medical men from the surrounding parishes will attend this most valuable and instructive presentation.

HOW TO KILL A MEDICAL SOCIETY.—Don't come to the meetings. If you come, come late. If the weather doesn't suit you, don't think of coming. If you do attend a meeting, find fault with the work of the officers and other members. Never accept office, as it is easier to criticize than to do things. Nevertheless, get sore if you are not appointed to a committee; but if you are, do not attend the committee meetings.

If asked by the chairman to give your opinion regarding some important matter, tell him you have nothing to say. After the meeting, tell everyone how things ought to be done. Do nothing more than is absolutely necessary, but when other members roll up their sleeves and willingly and unselfishly use their ability to help matters along, howl that the organization is being run by a clique. Hold back your dues as long as possible, or don't pay them at all. Don't bother about getting new members.—*The Aesculapian.*

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

IMPORTANT NOTICE!

On May 31, 1928, we had the occasion to address you a communication in regard to the proposed history of the Louisiana State Medical Society, which is presently being prepared by Professor Rudolph Matas, with the support of the House of Delegates.

We did not hear from you as to your wishes in regard to subscribing to this valuable book, and felt that probably the letter may have been misplaced or inadvertently overlooked by you. We would, therefore, again call your attention to this appeal made by the Louisiana State Medical Society for the purpose of securing subscriptions in order that a satisfactory budget for the preparation and publication of same may be arranged.

We would ask that you kindly execute and return at once the post card sent you. It is impossible for the Committee to know the number of copies of the history to prepare without having available information as to the wishes of each member. The Executive Committee has favored this means of indication rather than the imposition of a special assessment, which would be needed if not sufficient subscriptions are received. We therefore respectfully ask that you give this your prompt attention, and let us hear from you at once.

P. T. TALBOT,
Secretary-Treasurer.

Dr. H. Daspit, Dean, and Professor of Psychiatry, Graduate School of Medicine of the Tulane University of Louisiana, addressed the Sixth District Medical Society meeting at the East Louisiana State Hospital, Jackson, La., Wednesday, November 14, 1928, on The Psychiatric Aspects of Chronic Epidemic Encephalitis.

MEETING OF THE ST. TAMMANY PARISH MEDICAL SOCIETY.

The Society met in Slidell Friday night at 8 P. M. on November 14. The following members were present: A. G. Maylie and R. B. Paine of Mandeville, J. K. Griffith, F. R. Singleton and J. F. Polk of Slidell, H. D. Bulloch, J. F. Buquoi, L. Roland Young and J. F. Young of Covington, and A. H. Herrin of Bush P. O., Ia. Dr. Laurence Young attended as a guest and Drs. Carroll Allen, O'Ferrall and Potts of New Orleans were present. Dr. Allen was the specially invited essayist of the evening, who in his goodness had Drs. Potts and O'Ferrall to join him and motor over into St. Tammany and help make our meeting a bigger success.

The President, Dr. F. F. Young, and Secretary-Treasurer, L. Roland Young, were at their respective posts and after the regular order of business, etc., Dr. Allen's paper, the title of which was The Diseased Gall Bladder, was read and created a lot of discussion, particularly questions. Drs. Potts and O'Ferrall joined in this and they were listened to with a great deal of interest as was that most unusual paper crammed with the latest information on the gall bladder. These New Orleans M. D.'s were given a rising vote of thanks. On adjournment all retired to the Golden Goose Cafe were all enjoyed a nice cold luncheon and hot coffee.

L. ROLAND YOUNG, M. D.,
Sec-Treas.

NEWS ITEM.

Members of the faculty and teaching staff of the Graduate School of Medicine of the Tulane University of Louisiana who attended, and those who presented papers at the meeting of the Southern Medical Association, Asheville, N. C., Novmber 12 to November 15, 1928, are as follows:

Drs. R. C. Lynch, Urban Maes, W. H. Harris, P. J. Carter, A. L. Levin (officiated as Secretary of the Section on Gastro-enterology), T. B. Sellers (officiated as Secretary of the Section on Gynecology),

Dr. H. W. Kostmayer, In Hysterectomy for Benign Diseases, Should the Cervix Always Be Removed?

Dr. Isidore Cohn. The Surgeon, the Anesthetist and Their Patient;

Dr. Sidney K. Simon and Dr. D. C. Browne, The Medical Aspect of Chronic Duodenal Stagnation;

Dr. P. J. Kahle, Pre-Operative and Post-Operative Care of Prostatics;

Dr. Maurice J. Gelpi, Post-Operative Mortality and Morbidity in Gall Bladder Operations; and Considerations of the Anesthetic Factor;

Dr. E. C. Samuel, Chairman of the Section of Radiology, Roentgen Therapy of Pertussis;

Dr. W. F. Henderson, Dilated Duodenum, Roentgenologically Considered;

Dr. D. N. Silverman and Dr. Herbert Weinberger, Recent Advances in Gall Bladder Psysiology;

Dr. Muir Bradburn and Dr. W. P. Bradburn, X-ray as Related to Industrial Surgery;

Dr. W. A. Wagner, The Similarity of Symptoms and Signs of Sphenoiditis to Intracranial Lesions and Their Differential Diagnosis.

ALVARENGA PRIZE.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about Three Hundred Dollars, will be made on July 14, 1929, provided that an essay deemed by the Committee of Award to be worthy of the Prize shall have been offered.

For further details of the competition, apply to John H. Girvin, Secretary, 19 South 22d Street, Philadelphia, Pa.

BABY'S TRAVEL KITCHENETTE.

When you expect to travel with your baby, you would be lucky if you had the little folder published by the division of maternity, infancy, and child hygiene of the New York State Department of Health, which describes the equipment of a baby's travel kitchenette and gives directions as to how to make the baby's journey safe and comfortable. The equipment is that needed for a jurney of a week or 10 days with a baby from 9 months to a year old, and directions are given for the preparation and modification of the standard diet for a child of that age in order to provide proper food that can be readily obtained and easily transported. The New York State Department of Health is, of course, located at Albany.

U. S. PUBLIC HEALTH SERVICE ORDERS.

Senior Surgeon L. L. Lumsden. Directed to proceed on Nov. 7, 1928, from Washington, D. C., to St. Louis, Mo., and such other places in the States of Missouri, Arkansas, Tennessee, Georgia, Alabama and Louisiana as may be necessary, and return, in connection with rural sanitation studies.

A. A. Surgeon R. E. Bodet. Relieved from duty about Nov. 10, at U. S. Quarantine Station, New Orleans, La., and assigned to duty at U. S. Quarantine Station, Mobile, Ala.

AMERICAN COLLEGE OF SURGEONS.

The next annual Clinical Congress of the American College of Surgeons will be held in Chicago, Illinois, October 14 to 18, 1929.

EIGHT LEPERS RELEASED AS APPARENTLY CURED.

The Public Health Service has recently authorized the probational release of eight lepers from the National Leprosarium at Carville, La., as no longer a menace to the public health. These eight lepers have been under treatment at the National Leper Home for varying lengths of time, ranging from two years to seven years. It is of interest to know that leprosy, the dread disease of the centuries, is beginning to be conquered by improved modern scientific medical treatment.

The National Leprosarium at Carville, La., has been operated by the U. S. Public Health Service for a little more than seven years. During that time 37 lepers have been released or paroled as being no longer dangerous to the public health. Only one of these lepers has suffered a relapse and has had to resume treatment. More than 300 lepers are now under treatment at this institution.

COMMISSION ON MEDICAL EDUCATION.

New Haven, Conn.
October 18, 1928.

New Orleans Med. & Surg. Jour.,
1551 Canal Street,
New Orleans, La.

My Dear Sir:

Under separate cover we are sending you a copy of our Third Report. We shall be glad to supply any of your subscribers with additional copies gratis.

Yours truly,
W. C. RAPPLEYE, M. D.

MEDICAL PROFESSION OF WESTERN HEMISPHERE TO CONGRESS IN HAVANA.

The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from December 29, 1928, to January 3, 1929. The program, which is being arranged by the President, Dr. Fred H. Albee of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pediatrics, and tropical medicine.

Dr. William J. Mayo will give the Oration on Surgery, and Dr. Lewellys Barker of Johns Hopkins University the Oration on Medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire Western Hemisphere. Chapters of the Association have been and are being organized in various centers of North America and Central America, as well as in the Antilles, all of which will be represented at the Congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking people.

A large attendance is solicited.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

The South Mississippi Medical Society will meet in Laurel, Mississippi, on December 13. Their program will be as follows:

1. Tumor of the Brain—Dr. W. A. Dearman, Gulfport.
2. Eczema—Dr. R. W. Hall, Jackson.
3. Artifical Feeding of Babies—Dr. C. G. Wright, Hattiesburg.
4. A Paper—Dr. C. H. Holbrook, New Orleans.
5. Pellagra—Dr. J. S. Gatlin, Laurel.
6. A Paper—Dr. C. M. Davis, Laurel.

At this meeting officers for the year, 1929, will be elected.

Dr. C. J. Lewis, Assistant Superintendent of the South Mississippi Charity Hospital, Laurel, has resigned to enter private practice in Meridian.

Dr. Thos. R. Beech, Ellisville, Mississippi, has been appointed Assistant Superintendent of the South Mississippi Charity Hospital in Laurel to replace Dr. C. J. Lewis.

The Issaquena-Sharkey-Warren Counties Medical Society held its regular monthly meeting in Vicksburg on November 13th. The following program was presented:

1. Bismuth Salts in the Treatment of Syphilis —Dr. W. C. Pool, Cary.
2. Intestinal Obstruction—Dr. H. H. Johnston.
3. Dental Surgery and the Medical Profession —Dr. A. G. Tillman, Jr.

The Issaquena-Sharkey-Warren Counties Medical Society will hold its annual meeting on December 11, at which time Dr. J. H. Musser, New Orleans, Professor of Medicine at Tulane; Dr. Guy Caldwell, Shreveport, Orthopedic Surgeon, and one other equally authority, will be the speakers. The officers of the Mississippi State Medical Association and of the Louisiana State Medical Association have been invited and many of them have already accepted.

The Staff of the Vicksburg Sanitarium and Crawford Street Hospital held its monthly meeting on November 10th, with the following program:

1. Tubercular Peritonitis—Dr. J. A. K. Birchett, Jr.
2. Post-operative Cardiac Decompensations—Dr. L. J. Clark.
3. Carcinoma of the Cervix Uteri—Dr. W. H. Parsons.
4. Gangrene of the Testicle—Dr. S. W Johnston.
5. Demonstration of Radiographic Studies:

(1) Osteomyelitis of knee joint, injected with bismuth paste.

(2) Carcinoma of stomach.

(3) Osteo-sarcoma of shoulder.

(4) Bone cyst of mandible.

(5) Cholelithiasis.

(6) Tumor of mediastium.

(7) Ureteral Calculus.

(8) Renal Calculus.

6. Demonstration of Pathological Specimens:

(1) Adeno-carcinoma of stomach.

(2) Papillary cancer of ovary.

(3) Adeno-carcinoma of mammary gland.

(4) Hypertrophy of prostate (2).

The Central Medical Society and the Issaquena-Sharkey-Warren Counties Medical Society have arranged for two joint meetings to be held early next year. At the January meeting the Central Medical Society will be the host and in February the joint meeting will be held in Vicksburg. The dates of these meetings have not been announced as yet.

Miss Lelia Clements, dental hygienist of the Laurel school, reports that the white children show a total average of 72 per cent gold teeth while at the negro schools an average of 57 per cent was found on first examination.

SHEELY-FLOURNOY.

On November 8th Miss Regina Hariston Flournoy and Dr. Wallace Polk Sheely, of Gulfport, were married at the home of the bride's father, Mr. J. D. Flournoy, of Columbus. Dr. and Mrs. Sheely are spending their honeymoon in Cuba.

The Journal takes this oportunity to offer its sincere good wishes to them.

Laurel and Jones County nurses announce the establishment of a Central Registry for nurses at Laurel.

The Board of Aldermen of Aberdeen have recently appointed a committee to select a site for a community hospital, to cost $50,000. Press reports state that Senator M. C. Young introduced a bill

in the Mississippi Legislature by which the state will assist the town and county in providing for the maintenance of charity wards in the new institution.

The Holmes County Community Hospital at Lexington announces a campaign to raise $50,000 for the erection of a modern hospital building.

On October 1, Dr. H. C. Ricks assumed his duties as Director of the Bureau of Communicable Diseases, Mississippi State Board of Health, to succeed Dr. Hays.

Dr. Ricks was born in Georgia in 1892. His preliminary education was obtained in the public schools of Early, County, Georgia; Locust Grove Institute, Locust Grove, Georgia; and Cyrene Institute, Cyrene, Georgia. He was graduated in medicine from Emory University in 1916, and served his internesship at the St. Louis South Western Railway Hospital, Texarkana, Ark.

He was a member of the U. S. Army Medical Corps from August, 1917 to September, 1919, serving sixteen months in France with the Third Division. After the war, he spent four years in private practice in Durant, Oklahoma.

In May, 1924, he was graduated from the U. S. Army Medical Field Service School, Carlisle, Pennsylvania, after which he served as Director of Laboratories of Oklahoma State Department of Health from 1924 until taking up his work in Mississippi. He was also graduated from Johns Hopkins University in June, 1927, receiving the Certificate of Public Health. His field training was obtained with the International Health Board, Malaria Section, Leesburg, Georgia; State Boards of Health of North Carolina, Georgia and Alabama.

Dr. Ricks is a member of the Oklahoma State Medical Society and American Medical Association.

It is to be hoped that the profession of the State will aid Dr. Ricks in the conduct of his bureau by reporting promptly all communicable diseases.

Dr. R. C. Johnston, of Laurel, was severely injured in a recent automobile wreck. Last reports state that he is convalescing.

The annual convention of the Mississippi State Graduate Nurses Association is to meet in Laurel in 1929.

The Delta Counties Medical Society held its semi-annual meeting in Rosedale on October 17th, with Dr. R. M. Donald in the chair. Papers were presented by Drs. Owens, Janney, Mecklin, Denman, McIntosh, Speed and Paul Gamble.

The following officers were elected for the ensuing term:

President—Dr. G. M. Barnes, Belzoni.

Secretary—Dr. R. C. Finaly, Greenville.

Vice-presidents:

Washington County—Dr. Lewis, Greenville.

Humphrey County—Dr. Higdon, Belozni.

Sunflower County—Dr. Mancill, Indianola.

Bolivar County—Dr. Noble, Rosedale.

Leflore County—Dr. Brister, Greenwood.

The next meeting will be held in Drew, Mississippi.

The training station at Indianola reports that its activities were somewhat reduced during September as a result of the postponement of admission made necessary by certain changes in the staff. Those changes were as follows:

Dr. M. C. Balfour was transferred to the New York office on September 1st and was relieved by Dr. J. H. Janney.

On September 13, Miss Mary I. Mastin, supervising nurse, left Indianola to take up postgraduate work at Columbia University. Her successor, Miss Lucy Massey reported for duty on September 24.

The following is a list of those in training during September:

J. Nitzulescu, R. F. Fellow, Roumania.
M. Bustamente, R. F. Fellow, Mexico.
A. R. Balcarcel, San. Engineer, Guatemala.
H. H. Puckett, Health Officer, W. Virginia.
R. R. King, Health Officer, Arkansas.
J. W. Wallace, Health Officer, Georgia.
R. Fletcher, San. Inspector, Mississippi.
G. C. Hamilton, San. Inspector, Mississippi.
H. Harper, San. Inspector, Mississippi.
Beryl Boggs, San. Inspector, Kentucky.
M. F. Harnett, Nurse, Kentucky.
J. Kidd, Nurse, Mississippi.
P. Hargon, Nurse, Arkansas.
L. Landwehr, Nurse, Kentucky.
M. McNeil, Nurse, Mississippi.

Following is a list of visitors to the training station in the course of the month:

Mr. A. W. Fuchs, Sanitary Engineer, Mississippi State Board of Health.

Mr. Geo. Parker, Supervisor of Malaria Control Work in Mississippi.

Mr. H. A. Kroeze, State Sanitary Engineer, Mississippi.

Dr. C. C. Applewhite, Director of County Health Work in Mississippi.

Dr. O. C. Wenger, U. S. P. H. S. Venereal Disease Clinic at Hot Springs, Ark.

Dr. F. J. Underwod, State Health Officer.

Dr. L. B. Austin, Member of Mississippi State Board of Health.

Mr. N. H. Rector, Sanitary Engineer, Division of Malaira Control, State Board of Health, Mississippi.

Dr. W. Leland Mitchell, member of the Field Staff of the Rockefeller Foundation.

Dr. John Kendrick, Member of the Field Staff of the Rockefeller Foundation.

Col. G. G. Jolly, Acting Director of Public Health, Burma.

Dr. P. S. Carley, county health officer, Belzoni, Mississippi, was in the office on several occasions.

Lectures by staff members and station visitors were made to trainess on the following subjects:

The Milk Sanitation Program of a County Health Department—Fucsh.

The Duties of a Sanitary Inspector—Janney.

Organization and Administration of State Health Department—Janney.

Venereal Disease Control—Wenger.

Necessary Statistical Records of a County Health Department—Janney.

Experience in the Belgium Congo—Dr. King, trainee, former medical missionary.

An Insight into the Social, Economic and Public Health Conditions of Burma—Col. Jolly.

SOME ADVANTAGES IN DEALING WITH THE PRESCHOOL CHILD.

The preschool child is as much a problem for our consideration as is the school child.

The five-year-old reschool of 1928 is the school child of 1929. Why wait until he is in school to deal with him? His physical defects are not as far advanced; the correction will be easier. He has no assigned duties to prevent his complete corrections and uninterrupted recovery. The economic waste is minimized. The expected achievements of this child in school are most exaggerated in the minds of the parents. They desire that he be given every advantage possible. He cannot get on in his school work handicapped by physical defects.

A preschool child's time has no computed value, but the school child's first year has a computed value. If he loses a year because of physical handicaps his earning capacity throughout his entire life has been lessoned by one year of schooling. He has lost one year of life. We often see children in their rst year at school lose much time from communicable disease which could easily have been prevented by vaccination or immunization during the preschool years. Then, too, time is lost for a tonsillectomy and adenoidectomy, circumcision, toothache, pyelitis, and many other diseases and conditions that could so easily have been detected on physical examination by the family physician, specialist, or health officer and promptly corrected before the child entered school.

An adequate preschool health program is more important and has possibilities of doing much more for the child and the school than a school program.

ANENT THE USE OF DRIED BREWERS YEAST.

We are now able to secure debittered brewers yeast which is quite tasty and this yeast is high in B Vitamins and salts which the yeast gathers from the whole grain.

The price varies from thirty to forty cents per pound and is cheaper at that price than lean meat at fifteen cents per pound. The Germans are eating more yeast and les meat, which is a great advantage from a health standpoint.

The debittered yeast may be used in soups, stews, vegetables; it gives a good flavor to corn and wheat bread where it can be used up to six or eight per cent. It is very tasty as a spread for bread made possible by moistening and then adding to butter or other fats. It blends well with fresh, canned or powdered milk. It can be sprinkled into corn meal mush, oatmeal or other cereals.

One eating an ounce of brewers yeast per day gets fifteen grams of balanced proteins containing enough of the complete chain of proteins to balance the proteins of bread.

Before a great while all of the people of Mississippi will be taking brewers yeast as a part of their daily diet. As soon as we can, we should get away from buying this in bottles, bags and barrells, but should do as the Germans do—make our own yeast at a cost which is negligible.

FELIX J. UNDERWOOD, M. D.,
State Health Officer.

Dr. May Fairhold Jones of Sanatorium, Mississippi, attended the Southern Medical Association meeting in Asheville, North Carolina on November 12-15.

Dr. W. J. C. Wiemers, of Columbus, Mississippi, is now a member of the Medical Staff at the Sanatorium in Magee.

BOOK REVIEWS

Addresses on Surgical Subjects: By Sir Berkeley Moynihan, Bart. Philadelphia, W. B. Saunders Company. 1928. 348 pp.

The author has collected his essays and put them into a small volume in a very presentable form. As all his writings this volume is also quite interesting. In his usual easy style he is holding your attention-during one address-tracing the history of medicine and surgery, and connecting this with our present knowledge; whilst in the next essay he is giving a vivid description of some disease, as duodenal or stomach ulcers, pancreatitis, etc.

The first addresses are commemorative of men who have been pioneers in the great strides made by surgery. He gives an interesting study of Hunter, Harvey, Lister, and J. B. Murphy. The everlasting contributions of these men have been thoroughly brought out, and their influence on present day medicine shown.

Finally, in the last addresses he gives a complete clinical study of certain diseases in the upper abdomen—chief among which are those affecting the stomach, gall-gladder, and pancreas.

FRANK L. LORIA, M. D.

Elementary Text-Book of General Microbology: By Ward Giltner. Philadelphia, P. Blakiston's Son & Company. 1928. 471 pp.

This is a text-book of an elementary nature intended for use in a general college course and will serve as an excellent introduction to the sciences of Bacteriology, Photo-Zoology and Mycology. It would be hard to find a book better suited to the needs of the pre-medical student since it would bridge the gap between general biology and strictly medical microscopic studies. The author covers in a readable, instructive though somewhat brief manner the whole field of microscopic organisms. Besides the fundamentals covering micro-organisms in disease there are interesting accounts of the bacteriology of milk, water, soil, sewerage and industrial processes. The author follows Bergey's Manual of Determinative Bacteriology.

S. J. LEWIS, M. D.

Hughes' Practice of Medicine, Fourteenth Edition: By R. J. E. Scott, M. A., B. C. L., M. D. Philadelphia, P. Blakiston's Son & Company. 1928. 839 pp.

This edition of a well-known synopsis of general medicine has been brought up to date without being made more bulky in the process. The author is to be congratulated in the assembling of so much information in as clear and concise a manner as possible. Little space is given to anything other than accepted and tried methods in medicine. The charts and tables included are many and will be welcomed. Emphasis is given to essential diagnostic features. The treatment is full for this type of book and includes a good many details of nursing management and symptomatic relief as well as specific measures. The book will appeal more to the general practitioner and undergraduate.

Certain undesirable features should be mentioned. The author does not adopt the newer classification of cardio-vascular disease or of renal disease. The section on blood dyscrasias is inadequate as to diagnosis and treatment in some respects, as is the section on thyroid disease. No mention is made of the use of oil of chenopodium in the treatment of hookworm infestation. The standard treatment of malaria is not followed. The treatment of pellagra is not properly nor correctly outlined.

The reviewer feels that in spite of these obvious shortcomings the book is well worth having at hand.

S. J. LEWIS, M. D.

Surgical Diagnosis in Tabular Outline for Students and Physicians: By A. J. Cemach, M. D.; with an introd. note by John B. Deaver, M. D. Philadelphia. F. A. Davis Company. 1928. Not paged.

After a careful review of this book, I can well understand the success that it has met in the past, and think that its translation into English with its editions will make its fourth edition even more popular. A book, so well arranged as to diagrams and illustrations, covering so many subjects in such a short and concise manner, making it a book for ready reference, cannot help but meet with success.

All subjects are classified so carefully and minutely that it would be very difficult to select any one to exemplify. The text with its references, though only intended as a desk reference book, can be recommended most highly.

EMILE BLOCH, M. D.

The Determination of Hydrogen Ions: By W. Mansfield Clark, M. A., Ph. D., 3rd Ed. Baltimore, Williams and Wilkins. 1928. 701 pp.

The majority of workers in the field of physiology have some sort of an acquaintance with this book. The first edition appeared in September, 1920, the second in September, 1922, and there have been four reprintings.

The essential facts of electrolytic dissociation are facts common to several sciences and leading in many different directions. The hydrogen-ion occupies an unique place in the esteem of students of ionization. It is a dissociation product of the great majority of compounds of physiological importance and it is the ion for which methods of determination have been best developed. Its importance and its mensurability has conspired to make it a center of interest.

Today we find new indicators or improved hydrogen electrode methods in the physiological laboratory, in the media room of the bacteriologist and so on. There is a vast field of usefulness for methods of determining the hydrogen-ion. Within the past twenty years methods of determining hydrion concentration have served well in the exploration of many and diverse subjects. But the period of general exploration is drawing to a close and long ago there were begun exact studies of equilibria, or of kinetic events, in which hydrions participate. Refinement of technique, variety of method and elegance of formulation are in greater demand. Accordingly there have been added in this edition chapters or sections bearing upon each of these aspects and the old text has been almost entirely rewritten to conform to the revised presentation. As the author says, however, the requirements of a new age have far outrun the range of subject and the depth of treatment encompassed with adherence to the chosen style of presentation and consequently this enlarged edition remains more elementary in relation to the needs of today than was the first edition in relation to the needs of its period.

No one even superficially interested in the determination of hydrogen-ions can advisedly be without this book to guide him in his search for further information.

HENRY LAURENS, Ph.D.

The Opium Problem: By Charles E. Terry, M. D. and Mildred Pellens. New York, The Bureau of Social Hygiene, Inc. 1928. 1042 pp.

An extremely complete compilation of value to the physician, the public health workers, the social worker and to the legislator. The book discusses in detail the extent and development of the opium problem, the medical feature of the condition, and the various attempts to control the use of opium by international, national, state and municipal regulations. The book will be of great value to certain individuals, but for general practitioners it affords nothing except a very complete survey of the use of opium. The names of the Committee under whose direction the book has been prepared vouch for the authoritativeness of the material.

J. H. MUSSER, M. D.

International Medical Annual: New York, William Wood and Company. 1928. 574 pp.

This annual is edited by a number of English contributors. For that reason it is of considerable value to the American reader, because it reflects the ideas and the thoughts of a group of medical men who are totally separated from medical affairs in this country. The volume takes up alphabetically various diseases as well as different types of treatment, operative procedure and so on. Each article necessarily is brief, but covers fairly well the important literature of the year, for example, cancer of the stomach occupies about a page of printed matter which represents the abstract of six articles from American, German and French literature. Angina pectoris is a much longer article, nearly four pages with some eighteen references almost all of which are from American literature.

The book affords an opportunity to the physician of scanning briefly the very much abbreviated abstracts of the important contributions to medicine during the year from the viewpoint of English editors.

J. H. MUSSER, M. D.

Practical Surgery of the Abdomen: By George H. Juilly, M. D. Philadelphia, F. A. Davis Company. 1928. 20 pp.

This very practical volume dealing with the diagnosis and the operative treatment of the surgical diseases of the abdomen gives in minute and simple details the important points in surgical anatomy (surface and topographical) and the successive steps of the classical operation for the common and even rare conditions. This is accomplished by means of short, concise notatoins and numerous half-tone and line engravings, some in colors. To add to the practical value of this book, special emphasis has been laid upon diagnosis—sometimes sadly neglected—which, as the author justly says, "should always be as perfect as possible or at least attempted." The vicious habit of an exploratory section to make a diagnosis should be the exception, not the rule.

Another important and very pertinent thought that prevails throughout the text is the great distinction between "operators or brilliant technicans" and "surgeons"; the former need the internist to make a diagnosis and proclaim themselves simply "intelligent maneuvers who do—and often cleverly—what they are told to do regardless of the consequences"; the latter also know the art of surgical technic which can be taught and learned; however, this should not be the sum total of a surgeon's knowledge for besides being a good operator he should have a large clinical experience and "have honestly tried by

all means at his command and by close observation of the masters of the profession to reach the highest achievement of our art; the making of a correct diagnosis and by the exercise of sound judgment apply the treatment".

Repetitions are rather frequent but instead of being tedious and annoying as they usually are, they add smoothness to the descriptive operative details, thereby keeping the trend of thought unbroken.

A comprehensive bibliography of very recent literature-monographs, journal-articles and texts on special subjects—is an important addenda.

This work, though not of value to the medical student, is a worthy companion to the many good books on surgery and, no doubt, will soon take its place among them in the surgeon's library.

PAUL G. LACROIX, M. D.

Handbook of Clinical Gynecology and Obstetrics: By Rae Thornton, LaVake, A. B., M. D., F. A. C. S. St. Louis, C. V. Mosby Company. 1928. 281 pp.

Though one may learn from any text, it is not often that a clear understanding is given the important facts valuable particularly to a very busily engaged practitioner who is in need of quick reference.

LaVake's' Clinical Gynecology and Obstetrics contains in a concrete clear manner the everyday important spots embraced in these two allied subjects.

On the subject of toxemia pregnancy, Dr. LaVake apologizes for the constant harping concerning focal infections. I should think that no matter how often we repeat, enough emphasis can be made of the importance of eradication of focal infections.

If I may be permitted I woud suggest to the author that in a repeated edition he might expain some eponymic terms for the benefit of those who are not familiar with them.

ADOLPH JACOBS, M. D.

International Clinics: September, 1928. Philadelphia. J. B. Lippincott Company. 1928. 310 pp.

This volume is up to the usual standard of good medical literature. The number contains several articles of great importance to the physician. The articles on Endocrinology, Liver and Gall-Bladder disease, and Mongolian Idiocy are but a few excellent examples of a book replete with valuable data. It cannot be commended too highly.

I. L. ROBBINS, M. D.

Medical Formulary: By William E. Fitch, M. D. Philadelphia, F. A. Davis Company. 1928. pp. 501.

A prescription for everything, and everything prescribed for in 350 pages of small size.

J. H. MUSSER, M. D.

Recent Advances in Diseases of Children: By W. J. Pearson, D. S. O., M. C., D. M., F. R. C. P. and W. G. Wyllie, M. D., M. R. C. P. Philadelphia, P. Blakiston's Son's Company. 1928. 593 pp.

The authors present the ailments of the young in the form and manner in which they are met in every-day practice. The aim of the work is to formulate principles for solving problems of disease rather than merely to collect and record the work of others. The book includes many of the recent advances in scientific knowledge that have a bearing on the clinical study of disease in childhood.

Diseases and their symptoms are grouped according to regional anatomy. In the chapter on Clinical Methods is a workable classification of the two main abnormal types of children, viz., the lymphatic or alkaline type and the hypercalcic or acid type.

The work suffers from the therapeutic view point. In general, it is hard to see what need this book fills either for the general practitioner or the specialist in pediatrics.

L. VON MEYSENBUG, M. D.

Calcium Therapy: By John Audle, M. D. Privately printed. 1928. pp. 420.

A book so unscientific, so nonsensical and so illogical that it does not merit space in any medical library.

J. H. MUSSER, M. D.

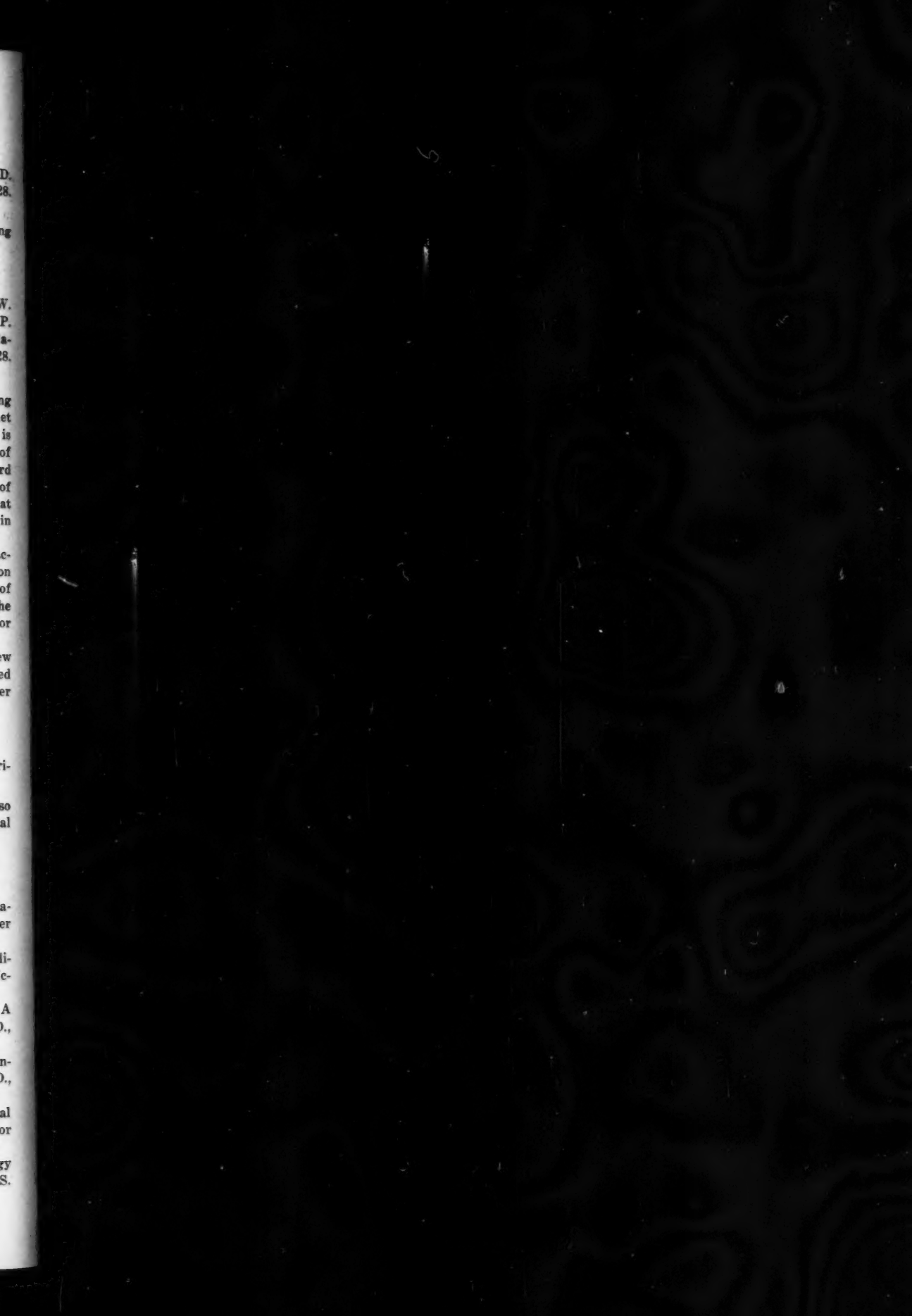
PUBLICATIONS RECEIVED.

Paul B. Hoeber, New York: Clinical Examination of the Nervous System, by T. Grainger Stewart, M. D., F. R. C. P.

Lea & Febiger, Philadelphia: Modern Medicine, General Index, Osler, edited by Thomas McCrae, M. D.

Williams & Wilkins Company, Baltimore: A History of Pathology, by Esmond R. Long, Ph. D., M. D.

D. Appleton and Company, New York and London: Urology, by Edward L. Keyes, M. D., Ph.D., F. A. C. S.

William Wood & Company, New York: Medical Record Visiting List or Physicians' Diary for 1929.

Tulane University: An Outline of Gynecology for Students, by C. Jeff Miller, M. D., F. A. C. S.